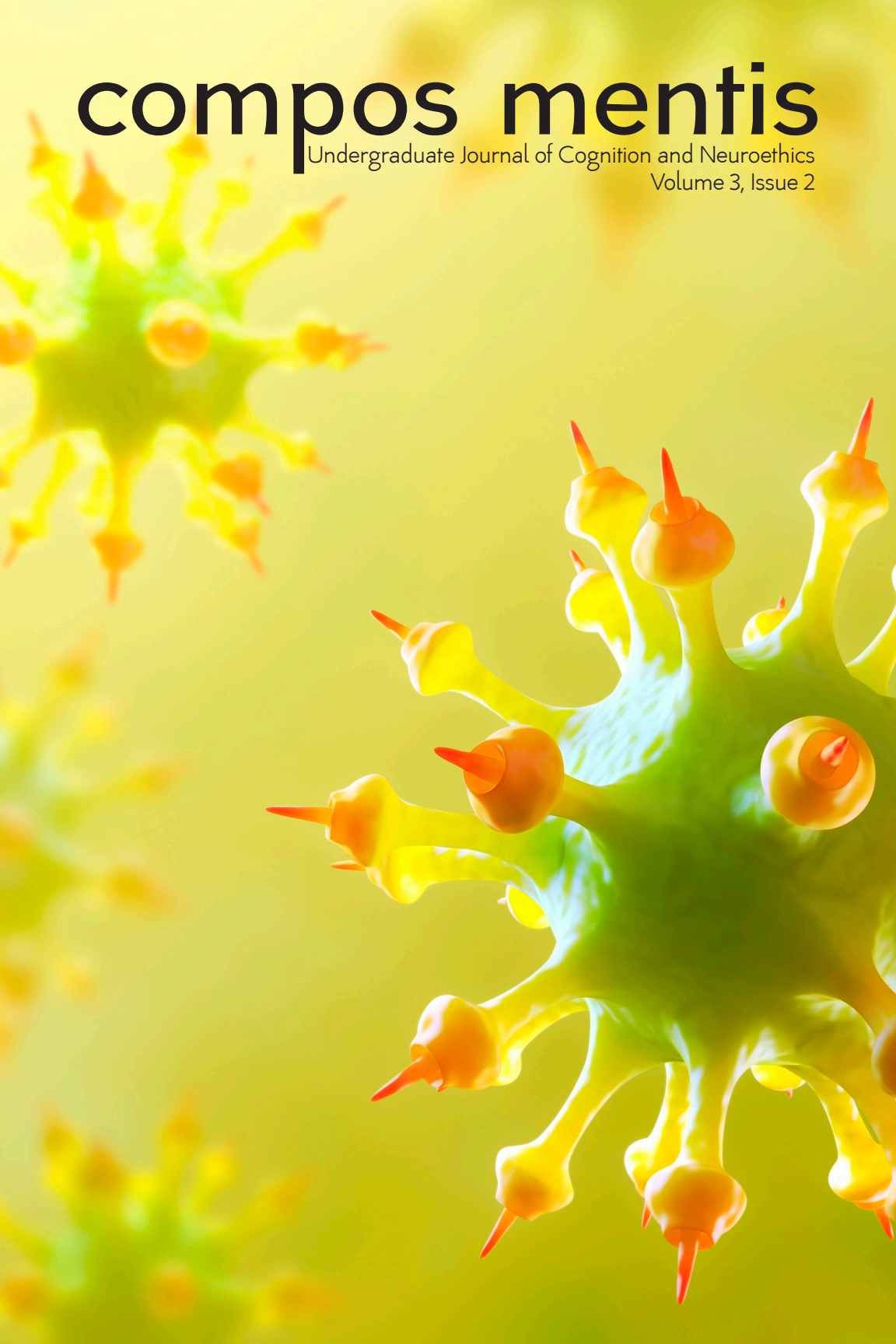


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Introduction

Thank you for your interest in this issue of *compos mentis: the Undergraduate Journal of Cognition and Neuroethics*. This introduction is bittersweet. While I am very excited to be publishing the second issue of *compos mentis*, it will also be my last as student editor. Two years ago I was asked to be the student editor of this undergraduate journal, and with some trepidation I agreed. The purpose of *compos mentis* has, since its inaugural publication three years ago, been to provide a place for undergraduates to publish their work in a serious and encouraging academic environment.

There are many people to thank to have this publication come together so tidily. First are the faculty advisers, Dr. Simon Cushing, Dr. Bénédicte Veillet, and especially Dr. Jami Anderson. Without them there simply would be no *compos mentis* or Michigan Undergraduate Philosophy Conference. I also need to thank the members of the philosophy club who have participated in both the review processes, which I believe greatly stimulated a wonderful discussion throughout. Especially, I think, Andy Slabchuck, who has been my undergraduate confidante for the past two years and is always able to steady the boat. I need to also thank the Philosophy Department at the University of Michigan—Flint and everyone at the Center for Cognition and Neuroethics. And, of course, I must thank our Production Editor Zea Miller who does an incredibly disproportionate amount of work for us.

As always, our review process for the non-conference issue is as follows. First we receive full papers from the participants. We then assemble a panel of students and faculty members who review the papers anonymously. Primarily using the input from undergraduate students, papers are accepted and rejected. After revisions, the papers are resubmitted for a final approval.

We are proud to offer these papers in this issue. And I eagerly await the future of *compos mentis*.

Thomas Mann
May 2015
Flint, Michigan

Egosyntonicity as Pathology in At-Risk Anorexia Nervosa Patients

Charles Dalrymple-Fraser

University of Toronto

ABSTRACT

Can a physician force life-saving feeding treatment on patients of anorexia nervosa? Common intuition finds such an act not only permissible, but perhaps even obligatory. Yet, such cases present as difficult issues for physicians, as a great number of anorexia nervosa patients both refuse such treatment and pass standard tests of capacity. As a result, there seem to be very few grounds on which a physician can prescribe such treatment. Still, there seems to be a sense in which refusing life-saving treatment ought to undermine a patient's claim to capacity, at least in the case of anorexia nervosa. That is, it is highly doubtful that a person not suffering from the disorder would decline such needed treatment; hence, the refusal must be pathological, and the consent capable of being overwritten. However, there are a few reasons to think that such refusals are not pathological. Indeed, recent research by Tan, Stewart, Fitzpatrick, & Hope (2010) suggests that values and beliefs associated with anorexia nervosa are occasionally egosyntonic—that a patient takes the values, behaviours, feelings associated with the disorder as critically part of their personal identity. In this way, the treatment decisions evinced by anorexia patients ought perhaps to be considered with equal force of, say, Jehova's Witnesses refusing life-saving blood transfers: the matter is not so easily dismissed of. The challenge, then, is to locate the pathology of this egosyntonicity; a task made difficult in the face of apparently non-pathological dieting mentalities. In this paper, I argue that narrative evidence supports the pathology of egosyntonicity for anorexia nervosa patients. In particular, that anorexia patients post-treatment recognize the pathology of their apparently egosyntonic values, and that even those who strongly embody the disorder would rather continue to live so that they could live with that disorder. In this light, there are apparent grounds for physicians to force life-saving treatment on anorexia nervosa patients, though I note that the specific pathological determinants of egosyntonicity require further research.

KEYWORDS

Anorexia Nervosa, Bioethics, Consent, Egosyntonicity, Medical Ethics, Paternalism, Pathology, Pathological Identity, Personal Identity

Patients of anorexia nervosa present a difficult problem for standard notions of consent. Whereas anorexia nervosa patients typically pass measures of the capacity for consent, they make decisions which seem to undermine their claim to that very capacity. In particular, such patients typically refuse life-saving feeding interventions, leaving physicians in a difficult situation: the intuition stands that such decisions must be pathologically caused, but our measures of capacity reveal nothing pathological in their ability to make decisions. Where, then, might one locate the pathology of such decisions? In this paper, I argue that our current understanding of the concept of egosyntonicity provides a basis for the forcing of life-saving treatment on anorexia nervosa patients, although further studies into the phenomenon of egosyntonicity are required in order to highlight the specific pathological determinants.

This paper has four sections. In §1, I provide a brief introduction to the difficulties surrounding measures of capacity in anorexia nervosa patients. In §2, I examine some possible responses to the difficulties raised, motivating in particular an exploration of egosyntonicity. Finally, I examine identity and the possible pathology of egosyntonicity in §3, and comment toward future research on the phenomenon. I offer brief concluding remarks in §4.

1. CAPACITY AND ANOREXIA NERVOSA

The question of whether a patient has the capacity to make decisions regarding their healthcare is one which concerns caregivers and ethicists alike. In order to make an informed decision about one's health and care, one must demonstrate the capacity to access the appropriate information and make decisions with regard to that information. Capacity here is usually taken to consist in: (i) presenting a choice about their participation in a treatment, (ii) an understanding of the relevant issues, (iii) rational manipulation of information, and (iv) an appreciation of the nature of the situation (Appelbaum and Roth 1982; see also Marson et al. 1997). When an individual does not demonstrate such capacity, it is often considered permissible for a caregiver to make decisions on the part of that person. Compare, for example: (a) a six year-old child repeats ceaselessly that they do not want to continue their cancer treatment, (b) a thirty-six year-old adult repeats ceaselessly that they wish to discontinue their cancer treatment. Typically, young children are not considered to possess the full capacity to access and interpret life-changing information, such that legal guardians are permitted to

make decisions for them. Hence, the ethical intuition prevails that a caregiver may continue the course of treatment on the child—given the intervention of the appropriate surrogate decision makers—but not on the adult: it is largely considered unethical to make treatment decisions against the will of a patient with capacity for consent, unless there are strong and available countervailing reasons.

Here, anorexia nervosa presents a possible dilemma. Anorexia nervosa is a feeding and eating disorder, with three primary diagnostic criteria: (i) engaging in a restrictive diet with the intent to keep one's body weight below a healthy BMI, (ii) an intense fear of gaining weight, and (iii) a disruption in the way one's body-image is experienced (Brown, Holland, and Keel 2014). Patients of anorexia nervosa often demonstrate full capacity, passing those tests designed to determine capacity in patients. However, many anorexia nervosa patients refuse to eat during treatment, and refuse life-saving treatments, even when a full recovery is likely, a refusal which seems so plainly irrational as to suggest that the patient's capacity is affected (Thiels 2008; see also Watson, Bowers, and Andersen 2000). Yet, those measures of capacity do not locate any failure in capacity on their part. Whereas physicians and caregivers are usually inclined to force life-saving treatment upon patients of anorexia nervosa, there seem no ready means by which to permit the action. Accordingly, to support the intuition that forced live-saving treatment is permissible, we need to locate defeasors for capacity in patients of anorexia nervosa.

2. RESPONSES CONSIDERED

In this section, I consider three apparent responses to the dilemma posed concerning: the inadequacy of the current measures of capacity (§2.1), the possibility of defeasors in the refusal to eat (§2.2), and the possibility of locating defeasors in the refusal of life-saving treatment (§2.3).

2.1 New measures of capacity

A first rejoinder might be raised: if there is wide-spread doubt about the capacity of a patient of anorexia nervosa in refusing life-saving treatment, then surely this may be reflective of the invalidity of current tests. That is, new conditions for capacity might be introduced which can account for the

compromised capacity which is intuitively present in these cases. Yet, a few responses can be made to this suggestion.

Firstly, those measures of capacity which patients of anorexia nervosa pass (in particular, the MacCAT-T) have been measured as having very high validity, both in terms of face validity and of content validity (Dunn et al. 2006; Grisso, Appelbaum, and Hill-Fotouhi 1997; Sturman 2005; Zapf and Roesch 2005). While there may be those who argue otherwise, it is not clear what other factors must be included in the measures of capacity which are not already present. The MacCAT-T, in particular, measures understanding, reasoning, and appreciation of the relevant information for the relevant situation (Grisso, Appelbaum, and Hill-Fotouhi 1997; see also Sturman 2005), and it is not immediately clear what measurable factors could be added to the test without promoting undesirable consequences for its application in other medical cases.¹ Furthermore, these measures of capacity are not just used in a healthcare setting, but also in legal settings (Zapf and Roesch 2005). Hence, an amendment to the measures of capacity would be far reaching, and it is not yet clear (i) what axes of analysis are improperly excluded from current measures, (ii) whether other desired factors are sufficiently quantifiable or measurable, (iii) that intuitions regarding the case of anorexia nervosa necessarily proves the measures of capacity wrong, and (iv) whether the addition of those new measures will negatively impact discourse and function regarding other matters of capacity. While these criticisms are not exhaustive, they indicate that burden of proof falls to the proponent of this position to indicate just how such measures ought to be amended. An argument demonstrating precisely how the tests fail to account for capacity in anorexia nervosa is required before changes in testing and policy.²

In the remainder of the paper, we will explore the ways in which the capacity to consent might be found compromised in patients of anorexia nervosa.

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1. For example, Charland (2006) proposes that the addition of emotions into this framework might account for the differences between test and intuition; but it is unclear what role emotion plays in anorexia nervosa.
 2. Granted, those arguments may still be insufficient to warrant a change. For a further criticism of amending capacity measures—and particularly as regards Tan et al. (2006)—see Grisso and Appelbaum (2006).

2.2 Refusal to eat

Although patients of anorexia nervosa pass capacity measures such as the MacCAT-T, it may be that there is a defeasor for the understanding and reasoning axes³ to be found in the general refusal to eat. Surely, that eating is necessary for living—which is necessary in turn for making decisions which regard the self—suggests that a refusal to eat demonstrates a lack of understanding or reasoning (Cf. Graham 2013, 157–159). This, then, is not directly to say that the measures of capacity are invalid, but that they are too-situational. Indeed, the MacCAT-T was designed in part to be situational and to regard a situation at hand (Grisso, Appelbaum, and Hill-Fotouhi 1997; see also Sturman 2005).

Yet, a refusal to eat is not itself sufficient to undermine one's capacity. Indeed, it is a common trend to diet, with recent surveys citing a dieting incidence in the United States between 20% and 56% (IFICF 2013; NPD Group 2013). Indeed, to consider only a refusal to eat seems insufficient unless we want also to permit the force feeding of dieters. Rather, we might instead consider as irrational the refusal of food *in a life-threatening situation*: surely those who are dieting for aesthetic or health-improvement motivations (etc.), and who do not meet pathological criteria for anorexia nervosa, would not refuse life-saving treatment. We will explore this below.

2.3 Refusal of life-saving treatment

Turning from unqualifiedly refusing to eat food, to refusing life-saving treatment (such as force-feeding) provides us with a narrower scope of analysis, and may serve to discriminate the case of anorexia nervosa from that of mere dieting. Indeed, it seems that a mere dieter would accept food in a life-saving situation, and that a person with anorexia nervosa can be distinguished by their failure to regard the severity of the situation at hand. However, it is not immediately clear that the decisions which patients make not to eat or to refuse life-saving treatment—even if made through skewed value systems, such that patients of anorexia nervosa can be distinguished from mere dieters—arise necessarily from pathological values. Indeed, we do not tend to consider individuals participating in a hunger strike to be irrational or lacking capacity, and forcing feeding upon a person on a hunger strike seems intuitively impermissible,

3. The MacCAT-T does not merely examine capacity holistically, but also categorically, according to those three axes outlined in §2.1.

even when they are facing death—the impact and value of such acts seem to arise from the hunger striker’s knowledge and understanding of the risks of not eating. The challenge, then, is to identify a characteristic of anorexia nervosa that might separate these cases.

Egosyntonicity refers to the sense that a patient of a disorder has of embodying a disorder, or taking it to be an important part of their identity. In particular, many patients of anorexia nervosa indicate that they feel the apparent disorder to be a part of their identity, and not an external matter needing treatment. It seems, then, that the apparent irrational behaviours in which patients of anorexia nervosa participate may arise from these internalized values: a patient who has internalized values of anorexia nervosa and thinness is unlikely to welcome feeding, as it contradicts their very *identity*. Indeed, interviews by Tan, Hope, Stewart, and Fitzpatrick (2006) have found exactly these responses in patients with anorexia nervosa:

Interviewer: Let’s say you’ve got to this point, and someone said they could wave a magic wand and there wouldn’t be anorexia any more.

Patient 1: I couldn’t.

Interviewer: You couldn’t.

Patient 1: It’s just a part of me now.

Interviewer: Right. So it feels like you’d be losing a part of you.

Patient 1: Because it was my identity.

...

Interviewer: What does your anorexia nervosa mean to you?

Patient A: As I said before, it’s quite a lot. It feels like my identity now, and it feels like, I suppose I worry that people don’t know, they don’t know the real me.

As a result, we might be concerned that to grant the right to force treatment on a patient of anorexia nervosa with these values would be roughly the same as to force treatment against a religious individual’s beliefs: it would be to act against those values which a patient has internalized and holds sacred, even if they may pose a threat to their health.⁴ It seems, then, if we wish to identify anorexia nervosa patients as lacking the understanding or reasoning which is relevant for

4. Cf. Jehovah’s Witnesses refusing life-saving blood transfusions. See, for review, Muramoto (1998).

tests of capacity, and if it appears that the reason those patients demonstrate a deficit in reasoning is because they have these internalized values, then it remains for us to demonstrate that the set of values—and one's egosyntonicity on a whole—is pathological and inauthentic. For, if those values are pathological—if they are causally onset with or after the onset of anorexia nervosa—rather than authentic then there may be basis for rejecting their capacity.⁵

2.4 Interim Summary

Patients of anorexia pass capacity measures, but make decisions which seem incompatible with the capacity for consent. In order to permit caregivers to force life-saving treatments on unwilling patients, we must establish the source of their intuitively compromised capacity for consent. Having identified that egosyntonicity plays a role in some anorexia nervosa cases, wherein patients internalize those values deemed pathological and make decisions with regard to those values, we must determine whether that egosyntonicity is itself pathological. For, if it is pathological, it may provide an avenue for caregivers to identify compromised capacity, which may then find permissible the forcing of life-saving treatments. However, if not deemed pathological, it will remain unclear how one might permissibly force treatment on a patient otherwise deemed to have capacity for consent.

3. IDENTITY AND PATHOLOGY IN EGOSYNTONICITY

Before continuing, it might be argued that taking a pathology-oriented approach fails to fairly regard the patient. For, if these values are egosyntonic and valued by the patient, and if a caregiver is supposed to provide care for that patient, then surely these traits ought not to be considered any more grounds for defeating capacity measures than would those beliefs of a Jehovah's Witness. By attempting to distinguish those egosyntonic values as pathological, we promote erasure of the patient's identity. For, in working to rid the individual of those

5. N.B. That one's set of values or egosyntonic identity is pathological here means only that they are causally intertwined or onset as a result of the onset of pathology. It is not to say that the identities themselves ought necessarily to be seen as inauthentic or requiring a "cure", nor is that the case of pathologies in general. Rather, it provides grounds here of identifying that the decisions made through egosyntonic values may be disrupted by the disorder and are thus non-representative of the wishes of the temporally extended person, and hence may provide grounds for engaging in paternalism.

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egosyntonic values we might find pathological, we thereby work to remove those very values which constitute the patient: there is no patient left to treat, for in attempting to treat the patient we instead destroy them.

In general terms, the question is a matter of why we ought to prioritize a pathological approach to resolving the issue of permitting force feeding, rather than focusing on the subjective values which the patients hold. More broadly, we must ask how it is that a diagnosis of egosyntonic values as pathological can work at all to permit force feeding in these cases. In what follows, I will analyze narrative evidence which regards the identity of the patient, to motivate a focus on pathology from the perspectives of the patients themselves. Then, using the same data, I will briefly conclude that caregivers may be permitted to force feed individuals suffering from anorexia nervosa, and discuss the limitations of such treatments.

3.1 Identity and Egosyntonicity

The consideration that the pathologizing and treating of a patient's internalized values promotes erasure of their identity is grounded on two key assumptions. The first is that those internalized values critically make up the identity of the patient, such that treating the patient—or at least to consider as defeasible the decisions generated through those values—is to go critically against the wishes of a measurably capable person. The second is that a caregiver's Patient 1s necessarily the individual with whom they are presented, and that the caregiver is not accountable to the pre-onset or post-treatment individual. It is not clear that these assumptions necessarily meet intuitions: though individual mileage may vary, it seems intuitive that a caregiver provides care to the individual as a unified person, rather than the ephemeral entity which presents under care. A physician is accountable to the healthy individual to help return them to health as much as they are to the present patient: they are accountable to persons through time rather than merely at a time. Yet, even if our intuitions are insufficient data, it is clear from interviews with patients of anorexia who have undergone forced treatment that these two assumptions are with little basis. Indeed, even the patients seem to think both that their decisions—made through whatever values they held—were in some regard dangerous and pathological, and that the apparent disorder compromised their decision making abilities (Tan et al. 2010):

Patient 22: I think ultimately beating anorexia has to be a decision that you make yourself. But if your health is so bad that you're dying or you're at risk of very, very severe illness, then I think you should be treated until you can make the decision. Because I think if you're ill enough you can't make that kind of decision.

Patient 30: I think other people should be made to have treatment because you do get to the point where you don't know what's right for you.

Patient 36: I think if somebody's life is in danger and is threatened and they have to go into hospital then yes it's very important to obviously re-feed them and to get them to a stage where they're not, where they're medically stable.

Patients also seem to believe that the forced treatment was of essential benefit to them as individuals following the forced treatment, and for which they express gratitude (Tan et al. 2010; see also Watson, Bowers, and Andersen 2000):

Patient 30: I know last year when I was ill there was no way I would have let anybody do anything to treat me, like for my own choice I would have just carried on losing weight, I know I would have done until I didn't live anymore, but now I hate to think that just because I said "no" I would have been left.

Patient 21: If I had been left without somebody forcing treatment upon me I would have just starved myself to death. So, you know, I wouldn't have got to my target weight and got happy and have things that I'll have in the future.

Patient 20: So then although when I was back there [i.e., very ill] I'd say "no, that's a stupid idea," now being here I look back on

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it, I think “hell yeah, you can’t not treat someone who’s going to die because they’re starving themselves.”

And, other studies have indicated that nearly half of all patients who deny a need for treatment on hospital admission convert to acknowledge that they needed to be admitted and treatment forced, within two weeks of hospitalization (Guarda et al. 2007).

In general, the argument from the post-treatment perspective seems to run as follows. A post-treatment person is the same as the person undergoing treatment, and so decisions regarding treatment for those patients ought also to consider the possible future persons affected by those decisions. While it might seem that a patient of anorexia nervosa who has internalized those values of anorexia nervosa is willing to die in concordance with their identity, to allow them to die is to ensure that they cannot continue living with anorexia nervosa. And, rather than having a death wish, one with anorexia nervosa wants to live, even if it is with anorexia nervosa—and for some, especially if it is with anorexia nervosa. Finally, the experience of anorexia nervosa can affect a patient’s ability to see that they are truly at risk for continuing to live, even though they can acknowledge the risk on their capacity measures. Accordingly, forcing treatment is not a matter of erasure which opposes the internalized values of a patient of anorexia nervosa; rather, it allows them to continue to live with and as that identity.

In this way, it seems that attempting to resolve the issue of force feeding patients of anorexia nervosa by appeal to pathology rather than individual values is justifiable, and may at the same time be respectful of those individual values. For, in demonstrating that those egosyntonic values are in some way pathological, we can support the permissibility of forced treatment which extends the life of that patient and allows them to continue living according to their own values. Indeed, the statements above seem to suggest that patients too believe that their attitudes in rejecting life-saving treatment are irrational, and that they are too ill to make those decisions. Accordingly, there seems to be sufficient motivation to centre decision-making around the analysis of pathology, rather than of the concurrent values of the patient needing that treatment.

3.2 Pathology and Egosyntonicity

A solution to the puzzle of egosyntonic pathology in anorexia patients may be found in the very reports which patients provide. The combination of the narrative

evidence from §2.3 and §3.1 above indicate that: (a) patients of anorexia nervosa tend to feel that the disorder is a part of their identity, (b) patients refusing to eat in a life-threatening situation are unstable and irrational, (c) patients refusing life-saving treatment will tend to value that treatment after it is forcefully administered (See also Franko and Keel 2006), and (d) that a reflexive or external perspective on that situation—such as that of a caregiver or physician—should hold more weight than the patient’s perspective (cf. Patient 22 and Patient 30, §3.1). Accordingly, we may be content to accept the prevailing intuition that those patients of anorexia nervosa refusing lifesaving treatment are forming their decisions through a pathological filter. For, even if the anorexic patient maintains a critical desire not to eat, they also maintain a will to live and continue to be anorexic: “If I had been left without somebody forcing treatment upon me I would have just starved myself to death [...] I wouldn’t have got to my target weight and got happy and have things that I’ll have in the future.” (Tan et al. 2010).

However, while there seems to be agreement between our common intuitions and those of patients after treatment, this conclusion only readily extends to the extreme cases of anorexia nervosa patients refusing treatment in life-threatening situations. For, while narrative evidence suggests that anorexia patients can retroactively identify a pathology which compromises their decision making ability, it is not yet clear in what this might consist. That is, we might be able to readily distinguish the strong case where a Patient 1n a life-threatening situation refuses treatment, but it is not clear what this uniform intuition can tell us of less urgent cases: what of anorexia nervosa patients who may be in a life-threatening situation within a week, or a month, or a few years? The challenge, then, is to distinguish wherein this pathology arises.

Perhaps the most effective way to determine whether egosyntonicity is pathological is to engage in motivational studies with those perceived as at-risk for developing anorexia nervosa, and to study them on a longitudinal basis to determine what changes occur between pre-anorexic and anorexic persons. Unfortunately, the difficulty in determining the pathology of the egosyntonic values stems in part from the ambiguity of the disorder itself. Again, we do not consider dieters simpliciter to suffer from anorexia nervosa, nor those on a hunger strike. Indeed, in modern society, one easily finds many persons in fear of weight gain, and struggling to meet those social ideals of lower-than-healthy BMI (see, for example, Dalley, Buunk, and Umit 2009). Furthermore, given the high rates of

dieting, and studies indicating that anorexia nervosa may onset following either intended or unintended weight loss (Brandenburg and Andersen 2007), dieting mindsets may carry over into anorexia nervosa as a dieter develops the disorder.⁶ That is, those values of refraining from eating may pre-exist the condition. Moreover, even if it is the case that most cases of egosyntonicity are pathological, the mere possibility for authentic egosyntonic values encourages caution about acting too-readily to force life-saving treatments on anorexia nervosa patients. Accordingly, using motivational surveys may not generate very useful data.

It seems that, in order to determine whether the egosyntonic values are pathological, more research needs to be done which seeks to measure degrees of egosyntonicity and the presence of values which (i) control for individual differences and permits for analysis of ethically salient correlations, and which (ii) more closely compares those dieting against those diagnosed with anorexia nervosa, on a longitudinal basis, in order to examine shifts in values over time. If such studies are then performed, we may be able to weigh the evidence toward the pathological or authentic, or come to see that another distinction may be more fruitful.

However, these concerns remain downstream from our initial concern: how to permit forced treatment on those patients of anorexia nervosa when they refuse treatment and are otherwise deemed to have the capacity for consent. And, though we may wish to set out a broader scope which permits us to force treatment on patients of anorexia nervosa that are not yet in a life-threatening situation, it is important to recognize the immediacy of the one case over another: one is immediately life-threatening, whereas the others have potential to become life-threatening, at which time treatment might be forced. Moreover, while we have not yet established what mechanisms underlay the apparent pathology of egosyntonic values in anorexia nervosa patients, we have established a general census that a caregiver or physician is permitted to force life-saving treatments upon anorexia patients. This has met both our common intuitions—whence the very issue arose—and those narratives of patients experiencing such conditions first hand. Ultimately, though our theory is incomplete, it provides immediate means for necessary action.

6. Indeed, studies indicate that dieters and anorexia patients share similar distortions in perceived body image. See Dalley, Buunk, and Umit 2009; Guardia et al. 2010; Keizer et al. 2013; Klesges 1983; and Uher et al. 2005.

4. CONCLUSION

This paper provided a survey of the ethical landscape of consent and egosyntonicity in anorexia nervosa. It was demonstrated that, if we can determine that those egosyntonic values of individuals suffering from anorexia nervosa are pathological, then we may be able to demonstrate a compromised capacity for consent. Furthermore, although no explicit basis for a pathological interpretation of egosyntonic values was distinguished, it was shown that there is an important census among our intuitions that forcing life-saving treatment on a patient of anorexia nervosa is a permissible action; particularly given that patients of anorexia nervosa tend to applaud the forced treatment, following its enactment (Guarda et al. 2007; Tan et al. 2010).

Finally, it is worth noting that this discussion of egosyntonicity in anorexia nervosa may influence other bioethical discourse, and particularly in the discussion of ethical issues regarding mental illness. It may readily be the case that persons suffering from major depressive disorder and panic disorders equally embody values deemed congruent with those disorders, and as such, that a similar discussion of the pathology of egosyntonicity may inform ethical debates regarding capacity to consent there, as well as in cases of somatic disorders. Ultimately, further research needs to be done to determine the boundaries and implications of this examination, but the current analysis provides an important step forward for caregivers considering treatment options for anorexia nervosa patients.

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Is Free-Will Defensible in light of Modern Day Psychology?

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ABSTRACT

In the past few decades a number of psychologists, beginning with neurophysiologist Benjamin Libet experimentally tested free will. In the experiments subjects were asked to perform a simple motor task, and determine when they felt as though they had made the choice to act based on a special timer while at the same time experimentalists recorded electrical activity in the brain which initiates muscle action. These experiments found that the electrical activity to initiate action occurs prior to conscious awareness of a decision, indicating that our intuition we have conscious control over our decisions is false. Libet's work and the work of similar psychologists has been used to undermine the idea of free-will. In this paper I argue that this conclusion is unwarranted if we consider the implicit assumptions made by these experiments. I first explain what the Libet experiments are and what they attempt to show. Then I argue that we have reason to believe that the experiments do not test instances of free-choice but rather random action. Next I argue that it is difficult if not impossible from a biological, philosophical, and cognitive perspective to identify a moment of choice. I develop each of these objections at length not to establish free-will but to show the Libet and similar experiments fail to undermine the intuitive notion that we have conscious control over our actions.

KEYWORDS

Libet, Free Will, Choice, Decision, Action, Consciousness, Freedom, Volition, Voluntary, Neurophysiology

Free-Will: A word of advice: if you ever find yourself in a conversation with a philosopher, whether she be a student, professor, or an interested reader, and the conversation goes dull; bring up free-will. The philosophical question of free-will is an interesting and very relevant question because it touches on every moment and every area of our lives. Defining free-will is difficult to begin with. It is for this reason that many philosophical debates revolve around the definition and nature of free-will. Beginning in the 80s, a number of psychologists, most notably Benjamin Libet, attempted to experimentally test whether or not we have free-will. The original experiments were interpreted to undermine the common belief that we have free-will. Subsequent experiments have been conducted and have produced similar results (Soon et al. 2008) whereas others challenge the original conclusion made by Libet and colleagues (Trevena et al. 2010). In this paper I want to critically examine the initial experiments done by Libet. In order to do so, I will first explain the experiments. Next I will attempt to show that the experiments do not undermine belief in free-will because they make faulty philosophical assumptions about the nature of free-will among other reasons. Before proceeding I must make two points. First, I am not attempting to show we do in fact have free will, only that the experiments fail to show we don't have free-will. Second, I am not going to have a rigid definition of free-will throughout the paper¹, I will be using the following working definition (with clarifications along the way when necessary): free-will is the capacity for an agent to consciously choose to follow some course of action. Essential to free-will is the idea that it is a personal act in that it is an act of a conscious agent and second that it is the person herself who determines how she will act.

I. THE LIBET EXPERIMENTS AND THE RESULTS

The first notable experiment attempting to test free-will was conducted by neurophysiologist Benjamin Libet. His initial experiment set the framework for future experiments which are more or less the same thing with minor modifications. There are three reasons that I exclusively focus on Libet's original

1. My justification for not using a rigid definition has three components. First of all, in the interest of space I cannot defend my definition and therefore using a rigid definition will simply raise more questions than it solves. Second, the arguments of this paper are meant to be fairly universal in that they should hold for a variety of definitions and understandings of free-will. Third, I have no need to give a rigid definition. Clarifications on my working definition will be given and justified when I see fit throughout the paper.

work. First, Libet's experiments are the most well-known as they are the first of their kind. Second, in the interest of space it is not possible to discuss every variation on the initial experiments however future experiments have been similar (as noted earlier) in both style and results. Third, my criticisms are applicable to the class of experiments in general because they are broad philosophical ones and therefore it is not necessary that I describe each subsequent experiment after Libet.

Libet's initial experiment is recorded in the journal *Brain*. In his paper, Libet describes his experiment. The basic structure of the experiment is as follows (Libet et al. 1983): subjects are told to sit down and are hooked up to an electrical apparatus (EEG) which records the readiness potential (RP), a kind of electrical activity in the brain indicative of motor action. While in this position, subjects are asked to view a kind of timer (a lit dot rotating around a circle in a clockwise fashion). Subjects are then told to spontaneously initiate a brief motor action such as a wrist flick and determine when (based on the timer) they had the conscious desire to make the motor action.² Experimenters emphasized to subjects that the decision to act ought to be as spontaneous as possible as opposed to a planned decision. Further, Libet et al. claims that subjects distinguished successfully between the pre-planning and consideration to act and the final feeling of a decision or "urge" to act as it was described (Libet et al. 1983).

Libet's experiments concluded with a discussion and statistical analysis of the results. Most significantly, Libet found that the RP generally occurred 550 milliseconds (ms) before action whereas the conscious awareness occurred on average 200 ms before action (Libet et al. 1983). This means that if we interpret the RP as the impetus to act, it follows that the action was set in motion prior to the feeling of a decision, prior to the perceived "moment of choice."

It is necessary to clarify some basic science behind this procedure. First of all, a readiness potential (RP) is an electrical current in the motor cortex of the brain which precedes motor action, including voluntary muscle action (Libet et al. 1983). The brain is a complex set of interconnected cells known as neurons. The cells in the brain are connected to muscles in the hands via the spinal cord. Neurons generally communicate (transmit information) to one another in the form

2. In the actual experiment there are in fact more complicated instructions because there are different phases. After the phase described there were other phases for instance involving having the subject see what time he thought he had moved based on the timer. It is beyond the scope of this paper to go into details. For more see Libet et al. 1983

of chemical messengers known as neurotransmitters. These neurotransmitters cause changes in the cell which receives the signal (a post-synaptic cell) which often result in a change in the polarity (that is the relative electrical charge of the neuron compared to the external environment) of the post-synaptic neuron. This change in polarity in turn causes this cell (post-synaptic) to release a neurotransmitter of its own. In motor neurons (neurons involved in muscle action), signals are transmitted from the brain through the spinal cord and ultimately to a muscle cell where the release of a neurotransmitter takes place causing chemical changes in the muscle initiating movement. Measuring the electrical activity of neurons therefore can tell neurophysiologists about their activity because such activity is indicated by electrical changes within the cells. The presence of an RP indicates the beginning of nerve firing which ultimately results in muscle movement. Another point should be made as well: there is no reason that the activity of neurons must be conscious per se. Much activity in the brain is in fact unconscious, for example, the neurological signals which result in our breathing or the release of hormones. Accordingly, only certain neurological activities rise to the level of conscious awareness. The proposal in the Libet experiment seems to be that even voluntary motor action which is a paradigm case of free action (hence the term "voluntary") is in fact at a more fundamental level an unconscious action which eventually rises to the level of conscious awareness in a way that other unconscious actions do not.

If the Libet experiments are correct in showing what they set out to, then it follows that what we experience as voluntary motor action is in fact just as unconscious and involuntary and therefore non-volitional as any other neurological activity like the control of blood-pressure. Consequently, it is argued, the determining factor in what feels like a free choice is in fact unconscious neurological activity and not a conscious decision. These experiments put the subject in the passenger's seat because the real driver is the subconscious brain not the conscious mind. Although this does not disprove free-will entirely it does cast doubt on the idea since, so the argument goes, voluntary motor action is a representative case of free-choice.

In the years since the Libet and similar experiments a number of criticisms have unsurprisingly been brought forth from both philosophers and scientists. It is beyond the scope of the paper to discuss each of these criticisms. In what follows I want to discuss what I perceive to be the biggest problems with the experiments

from a more philosophical perspective, however my criticisms also touch on some methodological problems as well.

II. PHILOSOPHICAL PROBLEMS WITH “FREE-WILL”

The first problem with the Libet paper is a faulty conception of free choice. While many consider the Libet experiments to capture paradigm cases of free-choice, this assumption is in fact unwarranted and likely false. To begin with, the so-called instances of choice being examined, while completely spontaneous are probably not instances where free-will is relevant. In the choices subjects made, there were no inherent reasons why one would opt to choose option A over option B, for instance, the choice to flick or not to flick the wrist. In other words, the choices were completely arbitrary. Most choices in our experience we make for various reasons. For instance, if I choose to have a cup of coffee in the morning, it is because I want to be alert for the rest of the day in order to get my work done. This is a free decision of mine, but it isn't done arbitrarily. This does not mean my desire to be alert determined that I would choose to make a cup of coffee³ in the sense that I could not have chosen otherwise; it only means that the reason why I did choose a coffee is intelligible. The choice for whether or not to do a simple motor task such as a wrist flick (or similar) is completely arbitrary and therefore it may not even be appropriate to call it a free act. There are many reasons to hold this view of free-choices which go beyond the scope of this paper, but the basic thrust of my argument is as that the best way to make sense of free-will in the first place is to understand it as goal-directed action. In other words, the will is a way of pursuing objects which we perceive to be good. Objects of the will may vary from quenching thirst to fulfilling ethical duties, but in every case, they are objects which we identify as worth pursuing. In the case of the Libet experiments, there isn't a clear object worth pursuing. Hence it is at least plausible to say that these so-called “choices” are random rather than rational acts and consequently they are not appropriately considered acts of free-will in the first place.

3. If one is inclined to accept a compatibilist notion of free-will, she can maintain that the desire determined the action yet the action is still freely chosen. My point about wrist flicks stands, in fact it may even be stronger, because there are no competing desires, it follows that there is no desire which can determine action.

This approach is not an ad hoc response to Libet's results either. For starters, the driving reason to maintain that humans do have free-will is to maintain a sense of responsibility. This presupposes choices are somehow rational. It is not essential that every muscle twitch be voluntary, only that meaningful choices are. Second, in understanding what the will is in the first place, it seems as though the best arguments explain will in relation to desires, motivations, and human rationality as noted above. These considerations which I will discuss further in the following paragraphs give us no reason to assume that the Libet experiments are instances where free-will is in fact operative. Rather, if we understand free-will in light of pursuing perceived good and as necessary for responsibility, then we might even have independent reasons to predict that Libet's experiments will not be instances of free-will given that the experiments measure cases where rational desires and responsibility (moral or otherwise) are not in any way relevant.

One who denies free-will may concede this and still think the experiments have a certain value. For instance, one could make the point that while these experiments do not successfully establish that all purported instances of choice are not in fact free, the experiments do establish that at the very least we cannot rely on our intuitive sense of choice, the 'feeling' that we choose or any introspective evidence in order to support free-will. The experiments thus neutralize one of the main arguments in favor of free will. The main problem with this objection however is that the subjective experiences in making an arbitrary 'choice' and the kind of choice we make that is not arbitrary (like the coffee example I just provided) are different experiences. The main difference is this: in instances of the former, I cannot explain why I chose as I did but in the latter I can explain why. The similarity in both cases rests on the fact that I do not feel any compulsion or determining factor outside of myself which directs me to action. Yet this is only part of the subjective experience for a free-choice. Another crucial element in a free-choice is that I understand the reason for my choice. When I choose to drink my cup of coffee in the morning, I not only feel as though it is free because I don't feel compelled to do it, I also feel as though it is free because it is my choice and I understand why I do it. In other words, an essential part of a free choice is that its locus is in the capacity to reason, i.e. the incorporation of our rationality or intellect is an essential element to the experience of choice. Goal directed action feels different than arbitrary action despite some prima facie similarities. Since there are independent reasons to see free-will as goal-directed

rather than arbitrary acts as noted above we ought to reject the premise of these experiments.

A second element to this basic problem is that the choices in question are not morally relevant. One very important argument for free-will is that it is necessary for moral responsibility. If there is no free-will, it doesn't make sense to praise virtue and punish vice. Therefore, free-will matters most when we consider morally relevant choices, such as the choice to befriend an outcast or give some money to the less fortunate. Since deciding to do some simple motor action at a certain time under experimental conditions is not a choice with any ethical imperative, it is plausible that the choice is in fact determined and we still have free-will when it "really counts" so to speak. The same objection to the previous argument can be made to this one: true, the experiments may not be about morally relevant choices, but at the very least they falsify the idea that we can rely on introspection to support the idea of free-will. The same response we gave above applies, i.e. the experience between arbitrary choices and choices with reasoning behind them is different. Moreover, this response can be strengthened in the case of morally relevant choices. This is because the experience of moral decisions is different from the experience of ordinary choices. So not only can we distinguish between arbitrary choices and intelligible choices, we can distinguish further between ordinary intelligible choices and choices which have moral content. Together, these considerations should lead us to the conclusion that even without further considering the methodology of the Libet and similar experiments, we ought to reject their conclusions on the basis that they rely on a number of dubious philosophical assumptions and implications.

III. PHILOSOPHICAL PROBLEMS WITH "MOMENT OF CHOICE"

Leaving aside the fact that Libet's experiments as well as subsequent ones use particularly poor instances of choice, there are other problems as well. In this section I want to concentrate on the philosophical problem with locating a moment of choice in time as well as some methodological problems which are related to the philosophical problem. What is said here stands or falls independent of the argument in the previous section however I certainly think that a case can be made that reading this section of the paper in light of the previous section can greatly strengthen the force of the following arguments.

One of the major assumptions of the Libet experiments (and others) is that the subjects in the experiment correctly indicate the time at which they made their choice. There are two main problems with this assumption. First, it relies on the vague notion of the “moment of choice” and second, there may be lurking variables which create a time lag between the RP and the conscious awareness of the choice.⁴

The experiments rely on subjects to report a moment of decision. This however is a very vague notion. A little introspection makes this clear. If we conceive of free-will as the power to generate from nowhere an instantaneous jolt which initiates movement, then these experiments may pose a problem. However, this description of free-will is not intuitively plausible. This definition seems to describe reflexes or urges more than anything else.⁵ One of the most important elements of free-will is that we can deliberate, reflect, consent, and direct our attention over continuous periods of time. There are a number of reasons why crimes of passion are considered less serious than crimes of deliberation, however certainly one of them is the idea that during periods of passion, our free-will is limited. This is because the normal elements of choice mentioned above are not really present, only a blind direction towards action driven by emotion rather than higher cognitive function is operative. This is relevant to the Libet experiments because if we accept that deliberation etc. are essential elements to free-will, then we have two reasons to question the concept of “moment of choice” employed by Libet. First of all, deliberation, reflection and directing our attention occur over time. Even consent often happens gradually. In the Libet experiments, choices are understood to be instantaneous. In fact, as noted in section I, the experimenters

4. This is of course leaving aside the contested assumption that the RP is in fact the moment of neurological “choice.” See Trevena et al. 2010

5. It is even possible to suppose that discrete choices are determined yet maintain humans have free-will if we accept a compatibilist account of discrete choices (one can even hold this and be a libertarian with regards to free-will in general). On this account free-will focuses more on the ability to gradually form our character through our thoughts and intentions over time. Three brief points are in order: (1) biologically, neuroplasticity provides a potential basis for this kind of freedom. Even if the neurons involved in momentary wrist flicks are not subject to conscious control, perhaps the synaptic connections in certain brain structures (e.g. the PFC) are subject to conscious control over time. (2) Psychologically it makes sense to see free-will as the ability to form our character over time rather than focusing on discrete motor actions. (3) Philosophically, this model can preserve morally relevant freedom and is consistent with various related positions e.g. libertarian or compatibilist, dualist or materialist.

explicitly request that the choices of subjects be completely spontaneous and unplanned (Libet et al. 1983). Second, in the subjective experience of choice, it is difficult to introspect and pick which part of the experience of freedom counts as the actual choice. It is not only very difficult to locate the straw that breaks the camel's back in a choice, it may not even be coherent to define given the variety of factors involved in what we all know to be our free-choices. Even if it is coherent however, it is manifestly very difficult to articulate what counts as the special moment. If we accept this analysis of free-will, it might be the case that certain elements of the decision initiate the RP but these elements are distinct from what people often consider the "moment of choice," however they are in fact the most important components of free-will.⁶

Even if the "moment of choice" were a perfectly clear concept, it does not follow that it is useful in these experiments. The reason is that even if we understand what it means, this does not entail that we are really good at determining when it occurs. I will make two simple observations that readers will hopefully relate to in order to make my point. First, our internal 'cognitive clock' as it were is manifestly inaccurate. Leaving aside choices, it is difficult to pinpoint the time in which a thought popped in our head, an urge occurred to us, or even something external to us happened exactly. This is because our minds are in continuous flow and it is difficult to break time up into such fine moments. This provides evidence which casts doubt on our ability to pinpoint the time something occurs regardless of whether or not it is internal and casts doubt on the Libet experiments as a whole which rely on an accurate internal 'cognitive clock.' Second, even if we accept internally we are perfectly capable of pinpointing a time of choice, it is manifestly difficult to match that time up with events in the external world. For instance, even if the subjects in the Libet experiments correctly identified the moment of choice, it would still be extremely difficult to match this up with an external timer. One mustn't only identify the vague moment of choice, she must also identify it in relation to a fast timer. The

6. N.B. The proposal described in an earlier footnote suggesting it is possible to hold free-will and hold choices are determined is relevant through the argument as presented in this paragraph however it is not essential. The point in this paragraph is to emphasize that there are a number of components to free-will which make it difficult to pinpoint a moment of choice. This is perfectly consistent that the moment of choice is undetermined (contra the aforementioned footnote) or that choices are determined yet we still have free-will (in accord with the proposal of the earlier footnote).

evidence is muddled even further once we realize the time intervals discussed in the Libet (and similar) experiments: about .3 seconds. If one doubts any of this, she need only set up a stopwatch and observe the difficulty herself.

A possible response to this criticism is that if it is difficult for us to identify the moment of choice then we should expect the experimental results to be random rather than consistent, i.e. they shouldn't consistently show the RP before the conscious awareness. Although there is some validity to this response, I want to also point out that it is likely that if there are inaccuracies in our internal 'cognitive clock' and its ability to match up with the external time, they are likely to favor one result rather than another and it may simply be the case that the inaccuracies bias the experiments such that the RP occurs before conscious awareness consistently. Just as a real clock may be either too fast or too slow consistently, so too our cognitive abilities may be slightly inaccurate in one way or another, that is, consistently. This intuition can be justified on several grounds. First of all, our cognitive abilities form as a result of natural selection. It makes sense that if there are inaccuracies, they are there as a result of an evolutionary advantage⁷ and consequently would not be random. Second, given the biological basis of cognition, it seems unlikely that the inaccuracies of our cognitive abilities in this area are simply due to random neural chemistry. More likely, there is some inherent biological explanation for the cognitive errors which is universally applicable in the sense that the error results from the way the human brain is structured or how it functions rather than moment to moment problems with the inner workings of neurons. Third, other elements of our cognition are consistent with this picture in that most of the time they are not random but explicable in terms of neurobiology, cognitive psychology, and evolutionary biology. Overall, this analysis does not prove that Libet's experiments are faulty, only that there are certain relevant and important factors which should cause psychologists and

7. An inaccurate cognitive clock may be evolutionarily advantageous. There are various kinds of cognitive bias which are technically erroneous yet they still persist in the human population because they are advantageous overall. Further, cognitive inaccuracies may be beneficial in that they help us follow through with reflexive life-preserving behaviors free from distraction. Additionally, cognition is biologically dependent on the nervous system. While a cognitive inaccuracy may not be itself advantageous, the neurological basis for the cognitive error may be. For example, maybe it's the case that the cognitive clock bias exists because the neural apparatus involved in the internal 'timer' is less metabolically active and this fact could be given plausible evolutionary explanation independent of the cognitive function of the apparatus.

neuroscientists to think twice before concluding from the experiments that free-will does not exist.

These considerations about the internal cognitive clock and the subjective experience of choice tie into the main thesis of this section in two ways. First of all, if we think of free-will as a gradual weighing of desires, thinking about options, and analyzing reasons for acting, it makes perfect sense to say that there is extreme difficulty in pinpointing a moment of choice. In other words, if we accept the analysis of free-will presented at the beginning of this section, we ought to expect cognitive difficulty in determining the exact timing of a choice.⁸ Second of all, the key features of free-will go beyond momentary choices. This is not to deny that there are momentary choices, rather, it is to show that there may be many momentary choices going on all of the time which together make up a complex system of thinking and deliberating which ultimately lead to some action. We must understand free-will in this entire context. It makes sense then that we would have difficulty pinpointing the moment of choice given that many cognitive tasks are going on in continuous fashion which play an important role in free-decisions.

Some however may have a problem with the foregoing argument because they may say that it is incoherent to speak of free-will without reference to discrete choices. To this I would respond in two ways. First of all, I am not denying discrete choices. I am only making the point that these are not the entire story. The reason is that free-will has to do with a sum total of free choices over an extended period of time while incorporating other cognitive tasks such as thinking and planning. Therefore, the exact moment of choice is hard to identify in an ontological, biological, or psychological (including first person) perspective. Second of all, I would deny that an instantaneous choice is as important as many would immediately think. As I said, I am not denying its significance or even necessity, only pointing out that there are other ways to think about free-will.

8. This fits nicely with potential neurobiological models of choice because any model must incorporate neurons in higher brain areas reaching a threshold gradually over time. This may be due to long-term synaptic changes or short-term electrical signal build up (e.g. in the case of temporal or spatial summation). Whatever the final trigger for action from a biological perspective is, we ought to consider the system as an interactive whole rather than simply focusing on one neuron's action potential. Thinking of free-will as a function of the system over time makes more sense given the complexity of a system capable of choices to begin with. This is a parenthetical point yet a good consideration from a technical standpoint.

Although this is somewhat speculative, perhaps we ought to think of free-will more in terms of will, desire and motivation than instances of choice. This may be accomplished if we think of free-will as an ongoing sustained desire for a good, the continuous consent to a certain motivation. For example, the committed athlete freely decides to workout. Those who think of free will primarily in terms of choice might see the athlete as making a distinct choice every day which is free to go to the gym. This however I think mischaracterizes what free-will is all about. The athlete goes to the gym because he constantly desires to get better. His choice to go to the gym is implicit in his desire to be in shape. The fact that the athlete actively desires to stay fit and deliberately intends to do so is what leads him to go to the gym consistently. However, this deliberate intention is an ongoing act of the will rather than a series of day to day discrete choices. Discrete choices may be important in some cases, but they may be secondary compared to ongoing acts of the will. Further, the choice to go to the gym every day is still a free-choice however this must be understood in light of the general desire to be fit. The choice to go to the gym therefore shouldn't be seen as a random act of spontaneity which leads the athlete to go to the gym. Rather it should be seen as the natural result of the athlete sustaining his desire to be fit, his knowledge that the means to this end is the gym, and his awareness of the fact that at this particular moment he had planned to go to the gym. Sometimes competing desires come into play and may change what a person wills, but that does not alter my argument here. In summary, one need not accept this picture. I only make it to point out there is no dogma which places an individual choice at the center of free-will. Free-will might be better understood as continuous deliberate intention rather than discrete choices. Again this is not to deny individual choices play a role, only to point out that the role might need to be reinterpreted in light of an alternative understanding of free-will.

IV. CONCLUSIONS

It is exceedingly difficult to define what the "moment of choice" is when discussing free-will. This is true on a biological level, a psychological level, and a philosophical level. There are a number of reasons for this including the fact that defining a moment of choice raises problematic philosophical issues of its own as well as difficulties methodologically. Additionally, free-will is best understood as rational decision making rather than random action. This is because introspectively

we think of free acts in terms of desire and because the main reason for positing free-will, namely to maintain a sense of personal agency and responsibility, is inherently wrapped up with the notion of choices being based on motivations. With these considerations in play, we ought to reject the Libet style free-will experiments because they rely on determining a moment of choice and rely on a notion of free-will which is philosophically untenable and is better understood as random action. My argument does not demonstrate that humans do have free-will, only that Libet style experiments fail to show that we do not. Finally, if further empirical studies are to be done on free-will, these considerations must be taken into account and the results of the studies interpreted in light of these.

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Waking From a Bad Dream: A Response to Threat-Simulation Theory

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ABSTRACT

Antti Revonsuo proposed an evolutionary account for the function of dreaming, rejecting other popular theories such as activation-synthesis. Revonsuo's hypothesis, threat simulation theory, proposes that dreams: 1) are too organized and reminiscent of reality to be considered random, 2) are specialized to present humans with and simulate threatening material, 3) present threatening content following related threatening experiences, 4) are understood to be real while the dream is taking place, 5) provide rehearsals that lead to changes in behavior (conducive to survival and reproduction), and 6) are evolutionarily selected for. I argue that this theory is unfounded and may not have worked as Revonsuo explains. Dreams may not be as organized as TST supports, but the likelihood of remembering such dreams can be explained using prior well established psychological theories. Flaws are presented in data that are used by Revonsuo to support TST regarding methodology that may skew understanding of dream content overall. The remembering of certain dream content can be explained by understanding preexisting psychological workings, such as schema theory and flashbulb memories. Efficacious mental training conditions are lengthy, repetitive, and focused, whereas dreams are short, spontaneous, and scattered, and are not likely to be conducive of developing behavior or responses that increase survival. Supposing much of the supporting data is accurate of dream content, there still remain larger questions about the likelihood that TST adequately explains how dreams may work under selection pressures. Since TST fails as a generalized account for why humans dream, I introduce alternative theories and other original ideas on how dreams may influence behavior on an individual basis. Shortcomings of evolutionary psychological explanations do not suffice as empirically justified theories, as they, as well as TST are post hoc speculations that remain untestable and unscientific in nature. Though evolutionary perspectives on behavior are helpful, there are serious doubts that TST provides an accurate representation of dreams as an adaptive function.

KEYWORDS

Cognitive Dissonance, Desensitization, Dream Function, Evolutionary Psychology, Fear, Implicit Learning

UNDERSTANDING DREAMS

Dreaming is a human universal. The content of dreams is wide-ranging from terrifying to pleasant, and from mundane to exuberant. The perceived events that happen while slumbering, if remembered (or even not!), are likely to at least leave the dreamer confused, if not behaviorally altered in some way. The act of trying to make sense of or understand these stories from an unconscious state has been around since the time we had the cognitive faculties necessary to think about them. Throughout most of history, interpretation has fallen into a religious context—we travel to an alternate reality where we meet or receive messages from gods; having a good dream means that our soul was taken by a god while we slept, while an unpleasant dream meant that a demon got to it first; the soul takes in images during the day and produces them again during the night. Freudian dream analysis came later, in which dreams serve as a window to peer into the unconscious and as a means of understanding our urges and wishes. The Jungian view came just a bit later than the Freudian, claiming that we should view dreams as neglected parts of the self that are to be understood symbolically.

Evolution and Functionality

A pattern has emerged over history; that the understanding of dreams is becoming localized to our immediate contexts and less attributed to other-worldly kinds of events. Contemporarily, the theory of evolution has led to the understanding of many different functions of living beings, and is driven by the idea that living things adapt to their surroundings by means of mutation and natural selection to survive. Biology and psychology alike have used the theory of evolution to make sense of why humans work physically and mentally. One popular dream theory, known as threat simulation (TST), is an evolutionary perspective to explain why we dream. According to threat simulation, the nature of the content we dream is determined by what we perceive to threaten us. Dreams are a means of rehearsing threatening events before actually encountered, and people are thereby more effective in the course of action taken in waking life. Antti Revonsuo supports a version of this theory, but the only part that stands is the idea that dreams have the potential to alter our waking lives—not the idea that dream content is pre-selected for threatening or anxiety-provoking material (Revonsuo 2003).

Before detailing his own theory, Revonsuo includes an overview of alternatives, and explains why they've either failed or are insufficient. Specifically, functionality is what he's after. Functionality is determined by whether or not something serves as beneficial to an organism, or increases the likelihood of survival and reproduction. So, if dreams are functional, this is what's expected of them—if we dream, we survive. A distinction is made between natural and invented function, in which natural is independent of culture or convention. Natural functions are intimately related to functionality, whereas invented ones are more tied to the other examples used in the introduction.

There is a possibility that dreams are non-adaptive, or came along with adaptive functions that do have a purpose. The most popular non-adaptive theory is synthesis-activation, which is a neurological standpoint on dreaming that claims that dreams are evolutionarily epiphenomenal, and are a result of the multitude of functional purposes being performed by the brain while we sleep (such as memory consolidation). In activation-synthesis theory, dreams arise as a result of the forebrain attempting to make sense of the activities involved in other neurological processes, and are understood as a random occurrence (Hobson and McCarley 1977). David Foulkes (1985) put forth a similar theory. Likewise, he emphasizes the randomness of dream content and denies any purpose, but does grant that our dreams take place in a kind of an analog to our waking lives. Owen Flanagan (1996), again, agrees that dreams are a result of the cortex processing noise, denies biological function, and denies that the phenomenal aspect of dreaming (*p*-dreaming) was selected for. Flanagan says dreams aren't worth remembering, and that the perceived sensations in our dreams have no real correlate, but since they aren't maladaptive, they've survived. Revonsuo does look to psychology for possible intellectual and emotional benefits from dreams, but to no avail—the evidence that he's gathered doesn't support these ideas. It appears that Revonsuo wants to find a place to fit the content that more closely relates to natural function, and can be supported by evidence. I, however, will argue that the evidence and assumptions made to support TST are insufficient to conclude that dreams have been evolutionarily selected to promote survival as opposed to being a byproduct of other evolutionary selections. The studies and data used by Revonsuo are often used hastily, or without consideration of alternative explanations. I will point out methodological flaws that leave Revonsuo's interpretations in doubt. I'll also present established psychological

theories that elucidate trends and other happenings in the data, as well as contradict the assumptions made that back TST. Finally, I propose another plausible explanation for how dreams may change behavior in individuals.

THREAT SIMULATION THEORY

Organized States

Revonsuo splits his argument into six propositions and defends them accordingly. His first proposition is that dream experience is not random, but that it constitutes an organized and selective simulation of the perceptual world. I'll refer to this as the "organized state" aspect of the argument. The dreaming brain is similar to the waking brain in terms of activity according to the studies that he cites, and the content we experience while sleeping is remarkably similar to the content experienced while awake. Dream content is laden with "objects, people, and animals, participating in a multitude of events and social interactions with other dream characters" (Revonsuo 2003, 883). Revonsuo argues that dreams are too coherent to be results of random noise, as other theorists argue. He expects that neurological noise would present itself in unintelligible ways—ways that wouldn't construct narratives or familiar people and objects as dreams do. The organized structure provided in dreams make them akin to a virtual reality. He says that threatening experiences are more frequent than other kinds, and concludes this section by citing a few studies that find that particular subjects like writing or calculating are not often found within dreams.

Threatening Material

Proposition 2 is that dreams are specialized in the simulation of threatening events, in which he argues that there is a clear bias or overrepresentation of threatening content in our dreams. Let this be the "threatening material" trait. The support for this claim is heavy in dream data and empirical studies. Studies on the emotions felt in dreams that indicate that about two-thirds of dreams involved negative emotions, and cites a study of his own in which the emotions experienced appropriately correlate to the content of the dream (i.e., if a person is being attacked in their dream by an aggressor, they feel fear). Misfortune, he says, is a more common theme in dreams than good fortune, but the kinds of misfortune most often experienced are "accidents, losses of possession, injuries

or illnesses, obstacles, and threats from environment” (Revonsuo 2003, 884). Death and falling happen much less frequently. The misfortunes often convey experiences in which resources and goals are threatened. Reasons are presented to believe that aggression involving the dreamer as a victim is a common trend as well. Data show high prevalence of interaction with enemies (or aggressors) in dreams, and that these enemies are typically male. Male aggressors were recorded as being more common in both men and women, explaining that our ancestors would’ve likely encountered more male than female aggressors in interspecies conflict. Animals, specifically large predators, were likewise recorded often in dreams. Children’s dreams are also suspect of being specialized, as studies find that they often dream about predatory animals. Recurrent dreams are examined, and according to a 1983 study, the only kind of recurring dream encountered were anxiety dreams that involved the dreamer being pursued or threatened. The aggressors in nightmares are, again, often unfamiliar males or groups of people. Last presented is neuroimaging data that indicates high emotional charge, presumably in response to dreamed threats. Again, overall, he aims to show that an overwhelming amount of dream content is threatening and that dreaming brain states emulate that of a waking one when it is emotionally distressed.

Dreaming from Experience

Proposition 3 is as follows: “Encountering real threats during waking has a powerful effect on subsequent dream content: real threats activate the threat simulation system in a qualitatively unique manner, dissimilar from the effects on dreaming of any other stimuli or experience” (Revonsuo 2003, 887). In other words, the experience of threatening events in real life leads to dreaming of that experience or experiences derived from that event. Let’s call this “The transitivity of threat” principle. Dreams resulting from trauma are likely to repeat, being continually more modified to match normal surroundings as time passes. Post-traumatic nightmares occur in those who have experienced “wartime battles, natural catastrophes, terrible accidents, or assault, rape, or torture,” the occurrence of the nightmares depends upon how threatening the experience was perceived to be (Revonsuo 2003, 887). The majority of children and Vietnam veterans who experienced or were exposed to traumatic events reported having related dreams. Only events or stimuli perceived to actually be threatening can

compos mentis

produce nightmares; stimuli used in experimental studies, such as film clips, aren't perceived as threats, and therefore do not produce these nightmares. He uses data to support the idea that real life threats lead to the activation of the threat simulation system by citing studies that show that stressful events lead to more intense REM sleep (the stage of sleep that dreaming is most frequent), and that those who suffer from post-traumatic stress disorder spend more time in REM sleep. Dream content is selected from our long-term memory. The more threatening a past event was perceived to be, and the more it pertained to physical survival and success, the more likely it is to appear in dreams.

Virtual Reality

Proposition 4 is the "virtual reality" part of his argument, so we'll refer to it as such. While dreaming, a person is unaware of dream content being anything but real. Dreams are vivid enough, thereby sufficient enough, to serve as a proper means of emulating what real threatening events would be like, because we're every bit as motivated to escape in a dream as we are in real life. This idea, of course, rests on the supposition that most of our dreams are of threatening material. Dreaming and awake brain states of individuals performing motor actions have been compared, and the motor cortex displays similar activity in both states. The reason that we don't actually move while sleeping is due to the activation of an inhibitory system that blocks the neurons' activity in the spinal cord, essentially blocking what otherwise would have been a real motor movement. A few cases are described of people who have REM Sleep Behavior Disorder, a condition in which the inhibitory function just described doesn't work. These people interact with their environment *while* dreaming, and real objects appear to correlate with dream objects. For example, there is a case of a boy who rises from his bed, grabs the butter dish from the table his parents were dining at, and hurls it through a window. He was dreaming about a bomb that was about to explode, and the butter dish, no doubt, was the dream correlate of that bomb (Oswald and Evans 1985). These aspects of dreaming are pieced together to show that dream behavior is adequate to rehearse waking behavior.

Dream Drills

Proposition 5 states that simulation of perceptual and motor skills in dreams leads to enhanced performance in real situations, and that these may be learned

implicitly. Think of this as “dream rehearsal.” To conclude this, data are cited from research in mental training that finds that mental kinds of rehearsal can lead to increased strength and performance. Research done on implicit learning indicates that consciousness (or memory) isn’t necessary to learn skills. So, the mental activities that we’ve engaged in while dreaming, though they may have even been forgotten, may be enough for learning and rehearsing skills. Assuming, again, that our dreams are filled with content of threatening situations, we would thereby be increasing our strength and performance should such events arise in real life.

Evolutionary Selection

Proposition 6 assumes his theory, and adds that the threat-simulation system was selected for through evolution. I’ll refer to this later as the “evolutionary selection” conclusion. Given that dreams are specialized in simulating threats and better preparing humans for real threats, those with this system in place had increased chances of surviving and reproducing under selection pressures. Conditions were tough; the mortality rates were high and people were dying before many were even able to reproduce. Threats likely encountered then were due to being eaten by animals, being exposed to the elements, disease, famine, incidents during hunting and gathering, and conflict between groups of humans over territory or resources. Since threats were so common, threat simulation was in effect often, enhancing skills over thousands of rehearsal sessions providing people with the skills needed to survive. Since those who could dream in this way were able to survive, they were able to pass this function on genetically through generations.

Summary and Concerns

TST says that dreams:

1. Are organized states
2. Simulate threatening material
3. Present content following threatening experiences
4. Are realistic and taken seriously
5. Provide rehearsals that lead to changes in behavior
6. Are evolutionarily selected for

Overall, threat simulation theory seems convincing in light of the evidence presented, but there are some cases to be made against his claims upon inspection of data. Some of the methodology used to collect it is questionable. I'm also skeptical of certain assumptions made about the involved psychological workings, and have alternative theories to introduce that may lead to a different understanding of threatening dreams. With some critique, we see that the theory may not function as well as expected under selection pressures. I'll revisit the propositions and address some issues.

REVISITING TST

Organized Recall

The "organized state" aspect, or the organized manner in which dreams are presented does seem purposeful in some aspect. The issue brought up doesn't say that dreams are puzzling because of the sometimes inexplicable content, but because they make any sense at all. People appear to have these elaborate narratives that strikingly resemble features of their waking lives and have some sort of coherence about them, but otherwise, how might dreams be remembered? It may be difficult verbally presenting dream content to another, or even accessing it ourselves if it were presented to us in a bundle of seemingly random images and sounds as a result of brain activity, as the activation-synthesis account of dreaming might suggest (Hobson and McCarley 1977). Revonsuo claims that the narrative fashion in which dreams are presented remains unexplained, (or not well explained enough by previous theories), but it seems that a classic work (as well as contemporary work) in schema theory might make sense of why dreams are as they're remembered.

Frederic Bartlett introduced schema theory to psychology with his first book *Remembering*, and in it, he proposes that people hold different organized clusters of information (or schemata) in memory. New information is made through relationships with the existing schemata (Bartlett 1932). Bartlett's 1932 work contained the classic "War of the Ghosts" experiment in which English participants read a Canadian Indian folklore piece. The story contained culturally foreign folk-phenomena which participants understood as ambiguous bits of information. Subjects were asked to recall the story several times at extended intervals. The parts of the story that did not match or identify with the readers'

previous schemata were either omitted or distorted to match previous information and beliefs. The more time that passed from the time the story was presented, the more bits were forgotten or altered.

This theory provides insight as to why dreams are recalled in such a coherent way. The more salient thoughts and events that tend to construct much of dream content, according to the activation-synthesis view, may be due to recent activation of schemata, thereby making a sort of mental filter that makes sense of the random firings. Dreamers may be presented with lots of odd and abstruse stimuli, and when their minds are trying to encode what they've been exposed to, then pieces of the dreams are discarded and altered in ways to easier make sense of them. It may be especially difficult to make sense of a dream as it's presented, but we do encode them in helpful ways which at least allow for coherent recall.

Medley of Material

The "threatening material" trait emphasizes the amount of research that suggests dream content is overwhelmingly negative, or that dream content usually involves aggressive or threatening interactions with others and environments. There are reasons why this might be the case as well. The kinds of studies used to support Revonsuo's theory are mostly done through self-reports made by the participants. The participants were asked to keep track of a dream journal over a period of time, and they filled them out when they were able to recall a dream at some point after waking. Gathering results in this way may skew the kinds of dreams being reported. More contemporary and controlled methods of gathering dream content data take place in sleep labs, where participants are woken when there is good reason to suspect that they were dreaming. Allan Hobson finds, according to his sleep lab studies, that more positive emotions are reported, and that this is so because negative dreams may wake people more often in home environments, making them more readily available to report (Hobson 2003). When not woken in a sleep lab study, the positive dreams would've been slept through, making them more difficult to recall later on.

These conclusions suggest that more recent findings conducted in sleep labs, or otherwise using equipment to wake a participant during REM sleep, would show more balance in the emotions reported, and this is indeed the case. Some studies show that the emotions associated with dreaming are mostly positive and accompany joy and elation (Fosse, Stickgold, and Hobson 2001). Others are still

conclude that the majority of dreams are negative (Merritt, Stickgold, Pace-Schott, Williams and Hobson 2001). Some studies are mixed with strong emotions, between positive and negative (Yu 2007). There isn't yet enough information to warrant a strong consensus, but it is evident that new methods of collecting data put Revonsuo's position on dream content being overpoweringly negative into question.

Aside from possibly being outdated and unable to provide accurate data of dreams by participants who wake naturally, some have raised the objection that the data that Revonsuo presents is in question because of how the dream content was coded (Malcolm-Smith and Solms 2004). Much of the dream data put forth by Revonsuo was determined to have aggressive features through use of the Hall and Van de Castle system, which has eight codes for aggression. Only four of them involve physical aggression. Of the four that involve physical aggression, not all of them involve dire consequences and may not even elicit a negative emotion. Something like stepping on a bug would qualify as an act of aggression (Domhoff 1996).

Another possible explanation for the excessive report of threatening content in dreams may be related to people's tendency to remember high amounts of detail about traumatic events, a phenomena widely accepted and reported in psychology (Kensinger 2007; Christianson and Loftus 1990). Specifically, studies have found that subjects report central details about these events clearly, but are less detailed in their accounts of peripheral content. This feature of the brain has clear evolutionary advantages on its own. Having the ability to remember crucial information about the environment, or using the memories of an event of a close mortal error vividly leads to different subsequent behavior patterns that boost survivability. This function may simply be working within the perceived dream events that have threatening content, making the recall of these particular dreams much higher.

Dreaming from Observation

There isn't much to contest about the evidence in support of "The transitivity of threat" principle, as listed symptoms of those with post-traumatic stress disorder include nightmares and night terrors, but there are doubts that this is so because of a threat simulation system. As victims of trauma are often met with their past through other mental associations (like flashbacks), then this may be

another example of salient content making its way into dreams. Revonsuo does put forth a claim within this section that appears problematic, though. He suggests that fictional stimuli isn't able to induce a sense of genuine threat to a person's life, and therefore doesn't function as a cue to be used as threatening content in dreams. This claim is made following a quote from a researcher who was unable to find a relationship between external stimuli and dream content, but the claim itself didn't cite any more research. I found this odd, given how people cringe and shriek while watching a horror movie, and that there are plenty more who report having nightmares, for instance, about movie characters trying to kill them. Much data indicates that people have strong emotional reactions after watching horror movies, and the phrase "cinematic neurosis" has been coined in light of this common reaction (Bozzuto 1975). Other studies actually use cinematic stimuli to induce anxiety to find an effective method of calming the patient (Mathai 1983). The content that makes it into our dreams isn't as specific as he makes it out to be in this section. It's clear that most people can discriminate between real threats and fictional threats, but the physiological responses still follow, and the content still meets us in our dreams (Van 2004).

Another claim made in this section is that nightmares occurring from traumatic events have a recurrent pattern in which they start as intense, but eventually become watered-down versions of them. He then suggests that all dream content may be seen as a result of threat simulation. Even if the most accurate and invasive means of viewing people's dreams were available, this claim is blatantly unfalsifiable, as this leaves dreams open to loose, adaptive interpretations.

Dream Demonstrations

The simulation of reality, or the inability to distinguish between dreaming and real life, and the inhibited motor movements discussed in the "virtual reality" part are widely accepted ideas. Lucid dreaming, which Revonsuo does mention, could be problematic, but it's agreed that this is a rare phenomenon that requires training and practice to do with any consistency. The conclusion about the rehearsal of motor movements and implicit learning in "dream rehearsal" though, does seem like a stretch. Again, he cites the efficacy of kinds of mental training—in this case, kinds of training that don't require motor movement that elicits progression in a motor skill. He suggests that this kind of training leads to benefits, so there's every reason to believe that the mental activities undergone in

our brains while we sleep will lead to survival benefits. There are components of mental training, at least of the kind cited in his work, that are probably missing in dreams. In experiments which found motor improvement from mental training, there's a decent amount of repetition involved before any benefit is seen. A particular study uses sixty trials of mental exercise before measuring benefits, and mostly saw improvements if the participant was young, healthy, and was given a short bout of physical practice before engaging in the training (Gentili, Han, Schweighofer, and Papaxanthis 2010). One of the studies cited by Revonsuo, in reference to improved performance in sports skills and measuring table tennis improvement, had their mental training condition relax (which wouldn't correlate with the negative emotions or threatening content that are suggested in dreams) as well as perform the physical task (Lejeune, Decker, and Sanchez 1994). The mental training group in this study rehearsed a specific counterattack return for 40 minutes; they were asked to imagine themselves practicing the technique backhand and forehand, as well as to feel minimal muscular tensions related to it. Other studies show zero to marginal improvement after mental training (Lamirand and Rainey 1994).

It's easy to imagine, with these findings, that teaching amnesiac patients any lasting, effective skills would involve similar concentration. The findings on implicit learning are largely on cognitive, frontal cortex kinds of tasks, which presents another problem for Revonsuo (Reber 1989). There is little to suggest that dreams are as repetitive, focused, or involve such long periods of mental training. The proposed relationship he presents is easy to understand, but difficult to imagine given experimental conditions that only sometimes provide any benefit. Dreams likely do not include the rigorous standards required for motor improvement.

Survival Trait Survival

The "evolutionary selection" conclusion, of course, makes the case for why this theory works well within an evolutionary context. This, too, merits investigation. Due to the heavy correlation of REM sleep in the process of dreaming, there are some minor concerns. There are some noted benefits of REM sleep, such as memory consolidation, and there are some noted effects of REM sleep deprivation, such as hallucinations. One common property of nightmares is that they have the ability to wake the dreamer, and in more extreme cases, can lead to insomnia. Since the content of nightmares is threatening or anxiety

provoking, the kind of content understood to be dominant by Revonsuo in the threat simulation system, it seems unlikely that these two functions would compete, in a manner, to maintain functionality. Do the dreams Revonsuo anticipates to work within his theory also maintain themselves under an excitation threshold in order not to wake the sleeper? Also, it has been reported that waking an individual from REM sleep often leaves them confused and disoriented (Zadra and Nielsen 1998). It was stated in Revonsuo's work that real threats may intensify REM sleep, and that those who had recently experienced a threatening event may spend more time sleeping in REM sleep. This seems to be another instance in which there is a conflict between an aspect of REM sleep and having to face a real threatening event, as it doesn't seem adaptive that one who had recently experienced a traumatic event should wake in a muddled stupor, or in a state that would leave them less able to defend themselves more often.

An issue was presented with the particular kind of learning that occurs in dreams, and even within the context of Revonsuo's work, it's challenging to identify how, exactly, the points put forth will lead to survivability. The idea appears to be that since people are exposed to threatening content via dreams, that they should be better prepared to face them in waking life, but why is this the case? It's unclear that a dreamer should come across the correct answers, or somehow learn the correct answers, to perform the best adapted course of action. People may come into contact with aggressors or other kinds of disaster within a dream, and he's established that they likely feel fear, which is an emotion that is felt in creatures in dire situations whether they're about to live or die. What isn't precisely established is how simulated threats are going to help. One could easily suppose that the physical response associated with fear or aversion on its own is the wrong course of action. Throughout an ancestral human's life, suppose they've had many dreams about a lurking saber-toothed tiger; they feel fear and anxiety, as they know they have little chance of killing it, even with a weapon. Let's suppose that their learned response that they've even rehearsed numerous times via dreams has been to run in the opposite direction, but what if in waking life, the human spots the predator first? The natural reaction, through simulation, may be to run in the opposite direction, but maybe this was the wrong move. In all the grass and brush, the human makes enough noise to direct the beast's attention. The human isn't faster than the tiger, so the human gets chased down and eaten. Maybe the right move in this situation was to keep cool and stay

still, going against what the dream would've prepared the human for. It could be argued that more often than not, running in the opposite direction would have been the correct move, still making threat-simulation selected for, but this invites another question: is that actually what all of those threatening dreams would prime an ancestral human to do?

Desensitization is a psychological concept that refers to a diminished emotional response to a negative or anxiety provoking stimulus after repeated exposure to that stimulus, or when an aversive stimulus elicits an action that is proven to be unhelpful or superfluous. It was originally developed and understood as a means of treating anxieties and phobias, and remains to be the most efficacious method of doing so. More recently, interest has been sparked in the concept due to the rising popularity of violent forms of media such as television and video games.

Exposure anxiety treatments, or treatments that physically or mentally expose a client to an aversive stimulus, have classically done in hierarchal manners. In other words, a therapist or practitioner collaborates with a client to determine a list of related fears, starting with the least aversive and ending with the most aversive. The client works through these starting from the beginning, and progresses to the next step when anxiety levels have diminished. This repeats until the end goal is met and anxiety is manageable or no longer present. Alternatively, an immersive, computer simulated virtual reality treatment is used in substitution of in-vivo treatment, and has proven to be similarly effective (Rothbaum et al. 1995; Garcia-Palacios, Hoffman, Carlin, Furness, and Botella 2002). A similar, but less effective version of exposure treatment is flooding, which doesn't involve the graduated, hierarchal process explained above.

Other studies in desensitization involve the media aspect, and they commonly find that exposure to violent media decreases responsiveness to otherwise sensitive (control group) participants; these results are consistent with long and short term effects (Bushman and Huesmann 2006). To illustrate this effect, one study found that after 20 minutes of playing a violent video game, responsiveness was decreased to come to the aid of an injured fight victim compared to the control group subjects, who played a non-violent video game (Bushman and Anderson 2009). Another study in this paper found the same effect with subjects who watched violent movies—they took longer to help an injured woman who had dropped her crutches than the control group.

With the effects of exposure to violence and anxiety provoking material well understood, it seems unlikely that repeated exposure through dreams would make dreamers more sensitive to the threatening content of their dreams, and if anything, it may even lend to them a more lax, inhibited response in the face of selective pressures. Also, the misery accompanied with a dream threat may become well-associated with another common non-threatening experience—waking up. Under Revonsuo's theory, people are essentially wearing a virtual reality desensitizer that runs about four times every night while they sleep. Threats may need to be related to novelty to some degree, and the innate fight or flight system humans developed at a much earlier stage in evolution probably works fine, if not better, without the assistance from dreams.

OTHER POSSIBILITIES AND EXPLANATIONS

Revonsuo considered and introduced other theories as he set out to prove his own. Activation-synthesis theory and the rest of the neurological theories were unsatisfactory to him because they didn't introduce a biological function of the phenomenal aspect of dreaming. Something was unsatisfactory about the previous answers to explain why people are able to sleep but feel so alive. Because dreams are so fascinating, people are driven to look for better explanations, but maybe there aren't, and maybe there doesn't need to be. If there is a better answer, I have doubts that threat simulation is the one due to of the problems that I've presented.

I side with the neurological, biologically epiphenomenal accounts, but with one distinction or emphasis. There's a term that's been used for dreams in the evolutionary sphere. The ability to dream is a spandrel—it came along with the rest of humans' adaptive structures, and it hasn't caused extinction, so it stayed (Internet Encyclopedia of Philosophy n.d.). The ability rests between the mapping of the brain and the need to sleep. So, as a species, dreams by themselves haven't killed us or provided any great advantages, but maybe the scope here is too vast. This conclusion has come about as a result of averages. As a whole, dreams don't perform a specialized role, but maybe there are more remarkable interactions that take place at an individual level.

Dreams have a rather unknown place in history, but if it weren't for these phenomena, life in some ways could be radically different. For instance, it's been said that Einstein's theory of relativity was inspired by a dream about a group of

cows huddled together touching an electric fence. A farmer came and turned on the fence, shocking the cows. Einstein was watching from a different place than the farmer and saw them all jump at once, while the farmer reported seeing them all move individually. The structure of DNA came to James Watson after he dreamt about two snakes. The sewing machine was invented after Elias Howe dreamt of seeing warriors who had spears with holes in the heads while being executed by a king for not inventing a sewing machine on time.

Dreams are idea mutations, if you will. While the ideas produced by dreams require context, the brain activities that happen during sleep lead to some unexpected results—the content produced in dreams could be considered the most creative. Our dreams aren't under any obvious control or direction. We get a random mess of scattered signals and our frontal cortexes pick up the pieces, and the results could lead to nothing or something huge. If not an idea, it could be just the little nudges in our mental states that lead to big changes. Maybe a nice dream occurs between the dreamer and a classmate, and who is then is inspired to ask them out, marries them, and starts a family. Perhaps a dream just puts someone in a good mood for unknown reasons and the mood helps determine an action. But, again, there's a chance that a wild dream warranting an interpretation results in a scientific revolution. Dreams may, as well, lead to unfavorable outcomes. What conclusions are to be made after a person does something deplorable in a dream, such as murder? What about out-of-character promiscuity? (Issues of dream actions being immoral character continuity between dreams and waking life are part of another debate, but speculating outcomes is of interest within this context.) The dreamer may be left in a conflicted state of self-reflection, trying to make sense of which part of their character would produce such an outcome, even in a dream state. They might wonder if their dream actions more closely reflect some deep, unconscious desire (as Freud supposed), and anxiety stems. Another outcome may be that the dreamer is compelled to reconcile cognitive dissonance resulting from dream content. They may do so by concluding that the poor dream actions are a more accurate representation of their self, thereby adopting the dissolute dream behavior. A separate possibility is that dreams do prime fight or flight systems, but in a way that causes strife between a dreamer and their otherwise close friend. A terrible nightmare about an otherwise docile environment or object may trigger anxiety when experienced

thereafter. These are, of course, speculations, but the nature their conception isn't entirely different from that of Revonsuo's theory.

Evolutionary Narratives

Revonsuo states that all six of his propositions are empirically testable (Revonsuo 2003, 878). What this means, though, is he can present some intuitive speculations on the nature of dreams, information on dream content, neurological activity, psychology theory, imply some cause and effect relationships, and then tie it all together to make a plausible story on how dreams came to be. In other words, he started with an idea about dreams that might explain their presence—people dream because they contribute to survival and the likelihood of genes being passed on. From there, he thought about how he could support that idea, and started investigating other ideas and empirical data that lend to it, asking himself if it fit or made sense looking through an evolutionary lens. If it fits, he considers it empirical evidence. If not, or at least not at first, it may be disregarded or reinterpreted to make sense in another way. I found that a reinterpretation took place between his original paper and a response to a related critique of mine. The original states, "...stimuli..., such as films, never induce anything like a sense of real threat..., " and thereby "...do not function as...valid cues for the dream-production mechanisms" (Revonsuo 2003, 887). Later, a different tone appears when presented with dream data that indicates higher prevalence of fictional content. Though content does involve much "fantasy and fiction," this doesn't imply that "the threat simulations in themselves are unrealistic and therefore inefficient. Even fantasy-based threats can be taken seriously within the dream..." and "thus...can activate threat perception and avoidance mechanisms in a relevant manner, just as effectively as reality-based simulations" (Valli and Revonsuo 2006, 467). This is a fluid process. There was an explanation to begin with, but he was presented with conflicting evidence and then found another way out. Giving post hoc explanations is even impervious to contradiction. Just change the story a little bit.

Further developments have been made in supporting TST by Revonsuo, but they're susceptible to the same criticisms I've presented (Valli et al. 2005; Valli and Revonsuo 2009). Additional evidence was found to make the story just-so, but the last proposition will always remain empirically problematic. There won't be a time when early human populations can be controlled for and compared to others who

don't dream, nor will researchers be able to measure a number of dreams our ancestors had and find a survival length correlation. The best explanations for why we dream will be guesses, but they'll only be guesses. Some guesses will be better than others, and others will fall behind. This one is falling behind. It's time to look for other answers—it's time to wake up.

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An Alternative Approach: Chinese Medicine and Autism

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ABSTRACT

Biomedicine and alternative medicine hold distinct paradigms for understanding the human body and health, distinctions which raise thought-provoking questions when it comes to autism spectrum disorders (ASD). What shifts in thinking about wellbeing and normality take place when families use both biomedical and alternative methods to treat or manage a diagnosis of autism? To address this question, I turn to specific cases of how different forms of Traditional Chinese Medicine (TCM) are utilized by families, and how this particular approach is either different from or overlaps with forms of biomedical treatment. My main focus will be describing this variation, and exploring how contrasting treatments can illuminate new possibilities for interpreting the autistic condition. Regionally, the scope of my discussion is predominantly limited to North America, although I draw a few examples from China as well. Regardless of location, my goal is to better understand what motivates the choice of TCM over biomedicine, vice versa, or even the use of both simultaneously. Understanding this decision-making process as one inevitably grounded in cultural beliefs and values can help us understand the differences between alternative medicine and biomedicine better. Examining these differences will also help us see how the body itself is both concrete and socially constructed. Because the spectrum of autism is so diverse, many different explanations and treatments can coexist and indeed enrich our imaginations and knowledge. In addition, the potential conflicts that may separate different perspectives can help us better understand how different forms of medical knowledge both diverge and overlap, and what the consequences are in everyday life.

KEYWORDS

Autism, Disability, Biomedicine, Alternative Medicine, Traditional Chinese Medicine

Biomedicine and alternative medicine hold distinct paradigms for understanding the human body and health, distinctions which raise thought-provoking questions when it comes to autism spectrum disorders (ASD). What shifts in thinking about wellbeing and normality take place when families use both biomedical and alternative methods to treat or manage a diagnosis of autism? To address this question, I turn to specific cases of how different forms of Traditional Chinese Medicine (TCM) are utilized by families, and how this particular approach is either different from or overlaps with forms of biomedical treatment. By looking at these experiences, I will argue that sustaining multiple explanations of autism that encompass both biomedical and alternative knowledges has the potential to decenter prevailing mind/body, normal/abnormal, and individual/environment dichotomies.

In North America, Traditional Chinese Medicine (TCM) is frequently classified as alternative or complementary medicine, in contrast to biomedicine, which is classified as modern medicine. While these categories of alternative and modern may accurately reflect specific cultural attitudes, a closer examination of the global history of medicine shows how this distinction can be misleading. Medical historian Don Bates (2002) does an excellent job of summarizing the differences between what he calls the classical and 20th century paradigms of medicine in a wide variety of areas including health, sickness, diagnosis, therapy, theory, and the doctor-patient relationship. Understanding TCM in light of the historical paradigm shifts Bates describes will allow us to see more clearly what differentiates TCM from biomedicine.

So-called alternative medical practices like TCM have much in common with the classical paradigm Bates describes. For instance, within the classical approach, there is a strong emphasis on the specificity of individual bodies, the integration of body and spirit, balance of humors and energies, and what Bates calls “ecological physiology” (2002: 16). By ecological physiology, Bates means “a physiology that does not stop at the skin, but which is closely interactive, to varying degrees, with anything from the immediately surrounding environment to the distant planets and stars” (2002: 16). This exact notion is found in theories of TCM: the body is understood to be inseparable from its natural environment, so treatment is influenced by seasonal and climactic factors (TCM Basics).

The theoretical foundation of TCM lies in the concept of yin/yang and the theory of five elements. At the most basic level, yin/yang is a theory of opposites:

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in terms of TCM, “disease is a result of an imbalance between yin and yang which leads to the hyperactivity or hypoactivity” of one or the other (TCM Basics). Yin signs are associated with “inhibitory, resting, passive, cold, progressing internally and developing downward manifestations,” while yang involves “excitatory, active, hot, progressing externally and developing upward manifestations” (shen-nong.com). The basis of diagnoses in TCM rests upon eight principals of contrasts or disharmony: exterior/interior, cold/hot, deficiency/excess, and yin/yang (Shen-Nong). Wellness is possible when there is a balance or harmony between the distribution of yin and yang associated features throughout the body.

The five elements theory is closely related to the notion of yin/yang balance, and harkens back to the idea of ecological physiology. The five elements are features of the natural world that correspond to elements of the body: wood, fire, earth, metal, and water. These five elements are used not only to describe orientation, season, climate, and cultivation, but also different organs, orifices, tissues, senses, and emotions of the body (TCM Basics).

The relationship between the five elements, in any context, is always mutual and generative, with complex forms of subjugation at work, so no one element can function in isolation (Shen-Nong, TCM Basics). When the relationships between the five elements are disordered or thrown out of balance, the body is compromised. As with the theory of yin/yang, the key to maintaining the balance of the five elements is to acknowledge that they are constantly in flux and always connected to the environment beyond the body itself.

One additional topic worth mentioning is TCM’s conceptualization of qi, which along with blood and body fluids is considered one of the fundamental substances that support life. Broadly speaking, TCM theory distinguishes between interconnected energetic and material properties that constitute the body. Qi, which could be defined as “vital energy,” serves a number of different key functions in keeping the body working properly.

Specifically, qi prompts the body to develop and grow, prompts the circulation of blood and the performance of organs, serves as a heat source to keep the body at a constant temperature, defends the body from environmental factors that cause illness, consolidates and retains bodily fluids, and metabolizes food to generate energy (Shen-Nong). In addition, “when qi becomes stagnated, the body fluid will accumulate and condense to form phlegm,” which can “interfere with and cloud the spirit” (Institute for Traditional Medicine). Qi is in

compos mentis

constant motion throughout the body, and maintaining balanced movement of qi is part of the tasks TCM sets out to accomplish to resolve health problems.

As is evident from the above discussion of a few of the central concepts of TCM, in this framework, health is understood in terms of balance, harmony, proportion, and unity. Qi, yin, yang, and the five elements are ultimately interrelated, fluid concepts, explicitly connecting materiality and spirituality, individual and environment. In such a context, it makes little sense to describe bodies as discrete and bounded. In addition, there is a strong notion in TCM that body and spirit are seamlessly integrated, and furthermore that our bodies are embedded in their environments and can only be explained by understanding the natural world as well. These fundamental concepts make TCM strongly distinct from biomedical approaches to the body. Indeed, in many ways TCM posits an entirely different reality than biomedicine does.

For example, one predominant tension between the two forms of medical practice is the divide between an “internalizing discourse” in which “disease is decontextualized” and an “externalizing discourse” that “emphasizes familial, social, political, and environmental contributions to ill health” (Lock and Nguyen 2010: 43). Biomedical practices are often built on scientific epistemologies that produce internalizing discourses, which emphasize dimensions of illness that are easily subject to experimental manipulation and statistical analysis. Such an emphasis tends to downplay or erase outright factors that are not easily measurable. TCM dissolves this internal/external dualism, expanding the concept of the body (and its health or lack thereof) to include the both tangible and intangible elements found in nature, beyond the individual alone.

While TCM acknowledges the uniqueness of each body, the standardized body is typically the point of reference for biomedicine. Biomedicine is

anchored by the idea of a universal somatic body where health and illness are conceived as opposite poles along a biological continuum...perhaps the most crucial distinction that differentiates biomedicine from other types of medical practice is its insistence that bodies can best be understood as standardized entities the world over (Lock and Nguyen 2010: 44, 55)

The idea of controlling nature so central to biomedicine is not present in TCM, where nature is seen as dynamic, and indeed, almost agential, in contrast with a

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more western notion of working with a dichotomy between humans and nature, where nature is an object to be subordinated.

Autism, in biomedical terms, is a spectrum disorder defined by the DSM-IV as involving deficiencies and abnormalities in the areas of development, functioning, socialization, emotion, and imagination (Chi 2014: 49). Symptoms of autism typically include exhibition of various disruptive or abnormal behaviors as well, especially when it comes to social interaction. The current consensus among the scientific community is that the symptoms of autism can be directly traced to neurological malfunction of the brain.

In contrast, "autism in the Western medical sense does not exist in Chinese medicine" (pacificcollege.edu). One way to classify autism and "translate" the condition into TCM concepts is to see autism as a syndrome of five delays in standing, walking, hair growth, teeth eruption, and speech (Pacific College). TCM also emphasizes the heart, spleen, and kidney as organs significant to autism, since they strongly impact reason, awareness, emotion, concentration, and memory. Additionally, treatment of autism through TCM can include regulating phlegm, an excess of which can compromise one's mental and emotional state of being negatively.

Thus, according to some TCM practitioners, "unlike Western medicine, which rates the brain the most important factor of the human physique, Chinese medicine sees the body and mind as part of the same circular system with the organs and the central nervous system" (Pacific College). The form diagnosis of autism takes in TCM is a clear reflection of a holistic approach, in contrast with biomedicine's reductionist approach: the entirety of the body is taken into consideration when interpreting problematic behavior. The four main avenues of treatment one could take when approaching autism through TCM are diet, acupuncture, massage, and herbal medicine.

When it comes to nutrition, temperature is one of the most important factors that are supposed to guide dietary choices; in general, warming foods (and here warm refers not simply to the physical temperature of food but the quality of energy) are considered the most efficacious for autism (Pacific College). Acupuncture and massage are used to restore balance to the body; acupuncture can "reconnect neural circuits that have been disrupted and disconnect vital areas of the brain" (Clark and Zhou 2005: 291). Herbal medicine is primarily used to target phlegm excess, and is always highly individualized for each person's

specific needs (Pacific College). Addressing autism through diet or herbs rather than pharmaceuticals again reflects the holistic values of TCM; the focus is on nourishing the entire body, not isolating autism as a target for elimination.

The symptoms or indicators of autism also can vary cross-culturally. Whether in the US or China, “as a product of everyday thinking and psychiatric thought, autism is a dynamic social phenomenon that is constructed in specific socio-cultural contexts” (Hsiao and Magyar 2006). Looking at autism in China, these two researchers highlight three characteristics of autism that are ambiguous due to cultural factors: aloneness, talkativeness, and pronunciation in speech. Hsiao and Magyar question whether these traits are strictly autistic, or simply culturally shaped traits, since these criteria are closely linked to “social-cultural phenomena and norms that regulate daily practices and social interaction” (Hsiao and Magyar 2006).

For instance, regarding talkativeness, they ask, “do most Chinese parents encourage their children to share their interests and talk about whatever they want? Or are children...taught to be self-effacing?” (Hsiao and Magyar 2006). If the latter is the case, it would be erroneous to pathologize reticence as an autistic dysfunction. On the other hand, Hsiao Magyar point out that pronunciation may be more significant a symptom in China than in the US, since Mandarin and other languages used in China rely on specific variations of tone for accuracy (Hsiao and Magyar 2006). These examples demonstrate the problems attendant to delineating autistic behavior, since norms of social interaction are always subject to change even within a given cultural context.

Research elsewhere has also shown that different cultures focus on different aspects of autism as disordered, and thus there is no consistent, universal conceptualization of what autism is (Mandell and Novak 2005: 111). The spectrum metaphor that has become popular in North America suggests that there is potentially no human experience that could not be described as autistic to some degree. In the face of so much ambiguity, it is harder and harder to maintain an essentialist definition of autism. What these details demonstrate is that there is a certain flexibility in defining what behaviors count as autistic, and that the evaluation of symptoms is dependent on specific cultural contexts—including the medical framework used to approach the issue. Using TCM can offer opportunities for families to change their perspective on autism. For example, in one study testing the results of a TCM treatment, parents evaluated improvement based on

how challenges and stresses to family life were alleviated; the goal for these parents was not to have their children become more “normal” or “less autistic,” but rather to accommodate their children in the easiest way possible (Ferguson et al. 2008: 16).

A variety of factors motivate non-Chinese parents to use TCM as a complementary or alternative treatment for autism. In general, using alternative medicine opens up “a broad domain of healing resources that encompasses all health systems, modalities, and practices and their accompanying theories and beliefs,” which can generate hope for parents searching for as many strategies as possible to ensure their autistic children can navigate a difficult world more easily (Wong 2009: 454). In the case of TCM, a biomedical diagnosis of autism often remains present and significant even as autism itself can be re-imagined through TCM theories. At the same time, frequently the goal in pursuing TCM treatments is not necessarily to eliminate autism itself, but rather “associated problems” that may manifest physically (such as sleeplessness or gastrointestinal issues) as well as in social interactions (Mandell and Novak 2005: 113).

In one ethnographic study, parents expressed that “perception of their child was not just confined to the description of diagnostic criteria...the same behavior or performance that is considered a sign of ‘impairment’ or ‘deficit’ in the criteria could be regarded as the child’s idiosyncratic way of coping with and knowing the world” (Chi 2014: 309-310). One effect a TCM approach has is decentering autism (as a biomedical category) as an explanation for every aspect of a child’s behavior and opening up possibilities for other ways to see multiple but integrated causes for what would simply be considered abnormality in biomedical terms.

This is possible in part because TCM shifts the focus from bringing an autistic child back into the realm of the normal as much as possible to discovering how to best allow a child’s unique needs to be accommodated. Tension may arise when trying to pursue this objective in a social context where biomedical concepts like normality are hegemonic, but it seems nevertheless that participation in TCM techniques opens up a space for families to reflect more critically on a diagnosis of autism with biomedical origins.

One specific form of therapy based on TCM is qigong sensory treatment (QST), a specialization of tuina methodology designed especially for autism. Tuina is essentially a form of massage therapy, meant to “normalize touch” in order to allow the “sensory systems to start working together” (Qi Gong Sensory Training

Institute). Notice that in this description, quoted from a professional, informational website, the use of biomedical language (“normalize”) is combined with TCM concepts (like integration of sensory systems). The website also directs readers to studies and research on QST published in mainstream medical journals as evidence of the treatment’s efficacy. Thus, in this case, we see a treatment of TCM being legitimized through recognition from biomedical knowledge. The QST training institute’s mission statement on the website states, “we work at the convergence of Western science, Chinese medicine and Public Health to develop evidence-based, early intervention that involves parents,” testifying to an apparent harmony between TCM and biomedicine.

The application of QST assumes that the underlying cause of autism is lack of proper regulation of the senses—hearing, vision, taste, smell, and especially touch. According to the principles of QST, when autistic children experience sensory impairment, they also suffer from lack of awareness, abnormal behaviors, difficult transitions, and delays in learning social and language skills (Ferguson et al. 2011: 3). Although this explanation is couched in primarily biomedical terms, the underlying concepts have their origins in TCM.

As one study puts it, QST is based on an understanding of autism as “a partial closure of the sensory orifices due to toxicity, deficiency, or block” (Ferguson et al. 2011: 3). This is a far more integrative approach to autism than biomedical approaches that often isolate the brain as synecdoche for the person as a whole. A neuroscientific discourse about autism, for example, might suggest that autism results from an inevitable “wiring” of the brain to function a certain (abnormal) way.

Some factors that influence treatment choices include how etiology is understood, the effect of the treatment, the child’s receptivity, and accessibility and affordability (Shyu et al. 2010: 1329). One study conducted in Taiwan found that “many parents hold both traditional medical/biological and supernatural beliefs” at the same time without conflict, yet interestingly, parents in this same study felt reluctant to admit they used TCM treatments to conventional health professionals (Shyu et al. 2010: 1330). Hence, there still appears to be a perceived divide between TCM and biomedicine, even when this divide does not prevent families from seeking treatments from both sources, sometimes simultaneously.

In other cases, some reasons parents cite as motivations for seeking alternative treatment like TCM involve not just their child’s experience, but also

their own experiences of exhaustion, depression, and stress (Shyu et al. 2010: 1327). In the studies of QST, interestingly, it is suggested that the massage has healing properties for both the receiver and giver (child and parent) alike, regardless of the presence of disability (Ferguson et al. 2011: 16). Thus, object of treatment for QST is not simply autism alone, but includes relief for the non-autistic parent administering the treatment as well. Like other treatments found in TCM, this method goes beyond “correcting” autism or assuming that the autistic child is isolated in his or her deficiency—rather, the process is about mutual healing. This kind of approach also suggests that autism is not a “thing” to be manipulated or eliminated, but rather something that comes into being through sets of social relationships—whether between parent and child, or otherwise.

In the cases discussed, there is no inherent incompatibility between TCM and biomedicine when it comes to practical application to autism, though the philosophies of each method are quite distinct. There is indication that the use of TCM, however, has the potential to prompt families to interpret their children’s health and behavior as intertwined with the harmony of body and mind as an integrated whole, undoing somewhat the scapegoating of autism as the sole cause of a child’s every action.

The value of TCM’s holistic approach as opposed to biomedicine’s reductionist approach radically alters the goals of treatment: broadly speaking, TCM aims to restore balance rather than normalcy, and each individual’s proper state of balance is unique. Nevertheless, despite TCM’s unique perspective on autism, many families may seek out TCM treatments with the goal of normalizing their child in order to ease his or her adaptation to society. The use of TCM, then, does not automatically indicate that biomedical values are no longer relevant—but there is also room for TCM to challenge biomedicine’s claim to complete, absolute knowledge of the body and autism as well.

A fruitful direction for future research on this topic might involve looking more closely at the use of TCM beyond North America—in China itself, for instance, where TCM is not in any sense “alternative,” but rather a mainstream source of healing. Indeed, the importance of being attentive to place and local cultural context cannot be underestimated when it comes to discussions about autism. However you conceptualize autism, whether through the metaphor of a spectrum or not, the range of possibilities for symptoms is astonishingly broad, and the

salience of certain features of autism no doubt varies significantly depending on the specific norms of the given time and place in question.

In addition, it is worth noting that the notion of treating, curing, or otherwise rehabilitating individuals with autism is a deeply controversial one in some cases. In North America and elsewhere, autism advocacy does not begin and end with concerned parents; many autistic individuals themselves insist that autism is a difference to be valued, not a deficit to be eradicated. The implications of this viewpoint are worth considering, and pose another promising possibility for further research on how the strategies of biomedicine and alternative medicine are either resisted or embraced. I would speculate that the particular strain of anti-cure sentiment that finds expression in the autism self-advocacy community is quite intimately tied to the kinds of scientific truths produced about autism that are foundational to biomedicine. In this sense, looking to TCM and alternative medicine is a way of looking beyond a cure, beyond deficit, and beyond the reification of autism itself as a threat to one's status as a fully human subject.

Pragmatically, people with autism—like all people—depend on certain techniques to successfully navigate their social and physical environments. The assumption that some forms of dependency are more abnormal than others is an unfortunate byproduct of the otherwise well-intentioned biomedical project to diagnose and treat autism (or any disability). TCM presents not only alternative treatments for autism, but also implies an alternative definition of personhood. In contrast to the self-sufficient subject valorized by the contemporary, neoliberal climate of the US that shapes biomedical knowledge and practice, the principles of TCM point us to a more dividualistic conception of the human person. To recognize the interdependency of human lives in this way involves a marked departure from the normalizing compulsions that drive a strictly biomedical view of autism.

My goal in elucidating the dissimilarities of biomedicine and TCM is not to facilitate a trite rehabilitation of the perennial nature/nurture debate. The claim that biology and culture are both always (although not necessarily equally) implicated in any configuring of disability has been made convincingly many times already. Etiology is not the primary concern of most families who seek alternative treatments, according to the examples discussed in this paper. Their objective, rather, seems to lie not in finding a cure, but simply in finding more successful forms of accommodation for autism than biomedicine can offer.

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Through TCM, accommodation can certainly involve bringing about changes in the patient's body, but these adjustments are always linked to a wider world that is likewise always in flux. The environment and the individual alike shift together; one searches not for predictability, but for harmony.

Enlarging the concept of autism itself beyond the vocabulary of biomedicine gives us an opportunity to critically re-evaluate our cultural notions of healing, wellness, and indeed the parameters of what kinds of human life are deemed livable. In comparing bio and alternative medicine, I want to resist the temptation to oversimplify their differences in terms of reductionism versus holism. Instead, the contrasts explored in this paper illustrate that the condition we call autism is a dynamic constellation of both challenges and competencies. In the end, the valence of autism's symptoms is deeply dependent on varying cultural modes of healing that make autism coherent in one way or another.

In conclusion, TCM makes it possible to see autism not simply as a cognitive handicap, but as related to many complex, interdependent processes both within and outside the body. In addition, linking the body, and by extension autism itself, to the physical world, through theories like yin/yang and the five elements, allows us to see how the environment can be disabling, rather than assuming that the individual is intrinsically disordered. Through the lens of TCM, it is possible to see some aspects of autism as not only socially constructed, but also as a concrete condition that can be addressed through therapeutic measures that affirm, rather than jeopardize, the humanity and wholeness of autistic individuals.

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Should 'gender dysphoria' be classified as a mental illness?

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ABSTRACT

One's internal sense of gender, or also known as gender identity, is a complex and multi-layered construct. While most people experience a congruency between their anatomical parts and their gender identity, some do not. This exception has led to its classification as a mental illness called "gender dysphoria (GD)" in the Diagnostic and Statistical Manual of Mental Disorders (DSM), also known as the clinical bible of psychiatry. This paper will explore this issue from various perspectives. First, some cross-cultural empirical research will be presented to argue how the classification of GD as a mental illness further cements binary understandings of sex that further complicates the issue. Next, this paper will also explore how simply de-classifying it from the DSM may pose some dire consequences for those currently benefitting from corrective therapies. The aim of this paper is not to provide a concrete solution for the issue. Rather, it is to illuminate the complexity of the issue by analyzing both sides of the debate.

KEYWORDS

Gender dysphoria (GD), Diagnostic and Statistic Manual (DSM), Mental Illness, Gender Identity Disorder, Feminist Theory, Transgender Issues, Sexuality

compos mentis

One's internal sense of gender, or also known as gender identity, is a complex and multi-layered construct. While most people experience a congruency between their anatomical parts and their gender identity, some do not. This exception has led to its classification as a mental illness in the Diagnostic and Statistical Manual of Mental Disorders (DSM), also known as the clinical bible of psychiatry. During its first incorporation into the DSM, the disorder was named Gender Identity Disorder (GID). However, in the most recently revised version, DSM-V, the name was revised to Gender Dysphoria (GD). While the diagnostic criteria have slightly evolved since its first incorporation in the DSM as GID to its revision as GD, it nevertheless remains a mental illness inscribed into the clinical bible of psychiatry. The issue of the classification of GD in the DSM has been long contested among various critics. In this paper, I will explore both sides of the debate: those who argue against its classification and those who argue in favor of its classification. First, I will provide some background information on the issue in relation to the DSM. Second, will bring forth cross cultural research on the issue of gender identity to argue that the classification of GD may have been the unfortunate consequence of a binary model of sex and gender identity that may not necessarily be correct. Second, I will expand upon the aforementioned point by contrasting GD with the other mental illnesses outlined in the DSM. Lastly, I will explore the other side of the debate by arguing how simply declassifying it from the DSM may pose some dire consequences for those currently benefiting from corrective therapies. The aim of this paper is not to provide a solution for the two sides. Rather, my aim is to illuminate the concerns of the two sides with the ultimate conclusion that the solution of declassification from the DSM that opponents had previously argued for may not necessarily be the correct method of rectification.

One of the most influential works in the discipline was by Dr. Harry Benjamin and the publication of his work, *The Transsexual Phenomenon*, in 1996. In it, he rejected psychological counselling as a valid treatment method for individuals experiencing incongruity in their gender identity, and instead helped to pioneer hormonal and surgical treatment methods that are still in use today. Fourteen years after the publication of Dr. Harry Benjamin's work, the Diagnostic and Statistical Manual of Mental Disorders (DSM), also known as the clinical bible of psychiatry, introduced a new mental disorder, known as Gender Identity Disorder (GID). GID was founded on the "identity" issue – namely, the condition was

categorized as an illness because incongruity between one's anatomical parts and their gender identity was seen as a mental illness. In May of 2003, the DSM came out with its most recent version and revised GID to be named Gender Dysphoria (GD). Instead of an emphasis on incongruity as the main criterion for its classification, a new emphasis was placed on distress. That is to say, an individual may not be deemed under the criterion of the new DSM to suffer from GD unless said individual experiences significant distress stemming from the lack of congruency felt by the individual. Thus, under the new revised version of the DSM, it is no longer considered a mental illness to identify with a gender that is opposed to one's biological sex (e.g. a biological female identifying as masculine). Rather, the question becomes whether this incongruence causes one significant distress.

While the doing away of incongruity as itself a diagnostic criterion has been interpreted by some as a transition away from societal understandings of gender identity as directly linked to one's biological sex, it nevertheless does not sufficiently address the influence that societal norms regarding the link between biological sex and gender have on one's mental distress. For example, how might the state of one's mental distress differ if one were situated in a society that does not assume a direct link between one's biological sex and one's gender identity? In some cultures, gender variance is expected and celebrated (Newman, 2002). Within these cultures, cross gender identity and cross gender performativity – the performance of cross gender norms – is not only prevalent but also celebrated. As a result of the lack of negative valence placed on these cross gender instances, individuals are not distressed because of their lack of incongruity (Newman). For example, the Zuni tribe of North American Indians does not see gender as intrinsically linked to anatomical parts. Sex at birth is not assigned; instead, sex is "discovered" via the use of intricate rituals and thus, cultural practices are used to interpret biology (Newman). Within this group of individuals, the Berdaches are a group of cross-gender individuals who are seen as a "third gender" – one that transcends binary male and female or masculine and feminine categories. They are assigned high social status within their spiritual and religious hierarchal system (Newman). The implication of these findings suggest that a significant factor contributing to one's distress stemming from their experience of incongruity in North America is the binary model of gender, where one's biological sex as male or female is causally linked to one's gender identity as either masculine or

feminine, respectively. If such a binary model were to be replaced by a more flexible model, such as the one mentioned in the Zuni tribe, far less individuals may experience distress.

Distress is a criterion common to the diagnosis of almost all mental illnesses in the DSM. Likewise, such a criterion, as mentioned above, is also one involved in the classification of GD as a mental illness. However, the criterion of distress for GD differs from the criterion of distress for many of the other mental illnesses in the DSM in that the cause of distress is significantly different for the two groups. For example, if an individual is depressed or suffers from attention deficit hyperactivity disorder, then the individual is distressed as an integral part of having depression or attention deficit disorder. In contrast, I have mentioned in the previous paragraph that distress in GD is not necessarily an integral part of GD. Rather, it seems to be caused by societal understandings of gender and the valence placed on congruence or incongruence. This difference between the cause of distress for GD in comparison to the other mental illnesses listed in the DSM has been argued by some as grounds for its declassification. In particular, many have argued that since distress in the diagnosis of GD seem to be a result of a deviation from societal norms, keeping it in the DSM will only serve to pathologize those do deviate from societal norms. This argument is often made by paralleling the classification of GD with the classification of homosexuality.

Many have paralleled the classification of gender dysphoria with homosexuality, as both are deviations of societal norms and thus, should not be categorized as mental illnesses. However, the difference in the two conditions is that patients of the former condition have benefited from treatment while the latter cannot be treated. Thus, the removal of the former from the DSM can have dire consequences for individuals hoping to seek hormonal or surgical therapies. If classification of gender dysphoria as a mental illness means that treatments would be available for patients hoping to alleviate their distress, then declassification of it would render the demise of insurance coverage of treatment options for some individuals. In a survey of 43 organizations working with gender variant individuals, 55.9% voted that gender dysphoria should be declassified from the DSM. However, of the individuals who voted for the status-quo, the main reason for doing so was for health care reimbursement needs (Vance et al., 2010). Thus, while the argument that classification of GD may pathologize individuals

who deviate from gender norms, simply declassifying it from the DSM may be too simplistic of a countermeasure.

Gender is not static. Its meanings change across cultures, across social organizations, and across historical periods. It is a fluid construct shaped by social, cultural and historical norms, reflecting the prominent themes dominate in said categories. Gender identity, then, is a multidimensional, multi-intersecting continuum that is not fixed nor anchored to anatomical parts. The distress some individual feel which prompts them to seek treatment for the condition is not a function of a disruption in their psyche. Rather, it may be the distress from nonconformity or from the internalization that they themselves are deviant for not conforming. Thus, while keeping GD in the DSM may further pathologize said individuals, simply declassifying it may not be the correct countermeasure either. Specifically, it may carry with it dire practical consequences for those hoping to seek health care reimbursements for the treatments that have helped them alleviate some of their distress.

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