

Irrationality and the pathology of beliefs

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Abstract

Just as sadness is not always a symptom of mood disorder, irrational beliefs are not always symptoms of illness. Pathological irrational beliefs are distinguished from non-pathological ones by considering whether their existence is best explained by assuming some underlying dysfunctions. The features from which to infer the pathological nature of irrational beliefs are: un-understandability of their progression; uniqueness; coexistence with other psychophysiological disturbances and/or concurrent decreased levels of functioning; bizarreness of content; preceding organic diseases known to be associated with irrational beliefs; treatment response to medical intervention, etc. Severe irrationality is sometimes caused by normal human motivation rather than by mental or physical dysfunction. Pure forms of self-deception may satisfy the diagnostic criteria of delusional disorder, but there may be no evidence that suggests that they are caused by illness. Although those with pathological delusions do not recognize their delusions as symptomatic of illness, differentiating pathological beliefs from normal irrational beliefs is vitally important: If a belief is pathological, psychiatrists must seriously consider treating the patient against her will. If it is not pathological, conversely, involuntary treatments are prohibited because they offend her basic autonomy.

Keywords

Delusion; distinction between normality and pathology; irrationality; self-deception.

1. Introduction

Typical physical symptoms are unambiguously pathological. We question *which* illness causes a fever of 39 degrees Celsius, but we do not doubt that it *is* caused by an illness. On the other hand, most of the psychological disturbances listed as symptoms of illness, such as anxiety or lack of concentration, can also arise independently of any illness. Horwitz and Wakefield have stressed this same point about sadness [1]. Sadness may be a symptom of mood disorders; but sadness may also be a normal response to the loss of what was valuable for the individual. Therefore, psychiatrists must decide whether observed psychological disturbances are pathological or not. I will argue that this point also applies to irrational beliefs.

Delusions are currently thought of as pathological beliefs.¹ Pathological delusions are the potential target of medical intervention, including psychotropic medication, hospitalization, and sometimes electro-convulsive therapy. Furthermore, it is generally thought that moral responsibilities are absent or diminished from speeches and actions based on pathological delusions ([2], pp. 213-15).

The diagnostic and statistical manual of mental disorders, fifth edition (DSM-5), defines delusion as follows:

A false belief based on incorrect inference about external reality that is firmly held despite what almost everybody else believes and despite what constitutes incontrovertible and obvious proof or evidence to the contrary. The belief is not one ordinarily accepted by other members of the person's culture or subculture (e.g., it is not an article of religious faith). When a false belief involves a value judgment, it is regarded as a delusion only when the judgment is so extreme as to defy credibility. ([3], p. 819)

This definition characterizes delusions as false and grossly irrational beliefs.² In addition, Current DSM criteria allow the diagnosis of delusional disorder when one (or

¹ Several authors propose that delusions are not really a type of belief, but rather another type of mental state, such as imagination, illusion, or an intermediate mental state located between belief and non-belief ([40–42], to mention a few). The chief propositions of the present paper hold true even if delusions are best conceptualized as a mental state other than belief, because not all imaginations, illusions, and intermediate mental states are symptoms of illness. In this paper, without delving deeper into the recent debate between doxasticism and anti-doxasticism about delusions, I will assume that delusions are a kind of belief.

² Many counterexamples have been raised against the idea that delusions are necessarily false in content. Those counterexamples include such cases as that of a wife who has a delusion of jealousy and whose husband actually is having an affair ([17], p. 106), and cases of the hypochondrical delusion that is expressed in a persistent claim of having gone “mad” ([43], p. 204). However, in these cases, the patients hold them based on wrong reasons. This observation suggests that the essential feature of delusion is epistemic irrationality rather than falsehood.

more) delusions are present with a duration of one month or longer without functional impairment or bizarre behavior, and when they are not explained by another diagnosis, such as schizophrenia, mood disorders, or the physiological effects of a substance or another medical condition ([3], p. 90). Combining these two definitions, it is implicated that any incorrigible false belief not shared by other people and persistent for more than a month warrants the diagnosis of disorder.

The DSM straightly infers pathology from unique and persistent irrationality. But this implication is inconsistent with the DSM's basic principle that "[s]ocially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual" ([3], p. 20). Holding culturally unaccepted incorrigible false beliefs is undoubtedly a kind of "socially deviant behavior" that invites "conflicts between the individual and society." However, it is still unclear whether such deviance always "results from a dysfunction in the individual."

Furthermore, Bortolotti recently revealed that the kinds of irrationality accompanied by pathological delusions are also common among everyday beliefs [4]. If the same types of irrationality are observed among both pathological and non-pathological beliefs, irrationality is not sufficient for deeming a belief to be pathological.

Patients with pathological delusions do not recognize their delusions as indicative of illness. It is not that delusions are symptoms of illness that are difficult to recognize as such; for example, nervousness is one of the symptoms of hypoglycemia [5]. Rather, it may be difficult for a subject to recognize her nervousness as a symptom of hypoglycemia. However, if she is appropriately informed, she may realize that her nervousness is caused by hypoglycemia. In contrast, the possibility that patients recognize their delusions as a symptom of illness is excluded *by the very definition of delusion*.³ A delusion ceases to be a delusion when the patient has the insight that it is an irrational belief caused by his illness. This is why Lewis stressed that insight regarding an illness is "*ex hypothesi* impaired" in those with delusions ([6], p. 332). From the patients' perspective, they do not passively suffer from delusions, but are actively committed to what they consider is true. It is uncomfortable to consider delusions as symptoms of illness because symptoms of illness are typically involuntary where delusions are not.

No belief is judged pathological if we always acknowledge the believer's viewpoint. Therefore, we must diagnose whether a belief is normal or pathological without the aid of the subject's own opinion. Notwithstanding, there is a striking difference between diagnosing a belief as pathological and diagnosing it as normal. If a belief is pathological, it is *required* for psychiatrists to seriously consider treating the patient against her will because the patient's illness may be so severe that she is unable to decide appropriately

³ The standard terminology of psychiatry classifies false but persistent suspicions that do not reach conviction as "ideas" or "ideations," and distinguishes them from delusions. For instance, whereas false and incorrigible convictions that "events, objects, or other persons in one's immediate environment are seen as having a particular and unusual significance" are called "delusions of reference," feelings or suspicions with the same content are termed "ideas of reference" ([3], p. 819, 823).

whether to receive medical treatment. If it is not pathological, conversely, involuntary treatments are *prohibited* because they offend the believer's basic autonomy.

This paper aims to illustrate on what basis a belief is judged pathological. The present paper's structure is as follows: In section 2, following Bortolotti, I will see that the violation of the norms of rationality is observed among both pathological delusions and mundane beliefs, and argue that irrationality is not sufficient for inferring pathology. In section 3, I will introduce Murphy's idea that pathology of belief is inferred when normal psychological and socio-cultural perspectives do not give a good account of these beliefs. His idea is basically correct, but should be supplemented by additional information that positively supports the pathological nature of irrational beliefs listed in section 4. In section 5, I will argue that irrational beliefs that are caused by normal motivations are not pathological, and raise the case of pure self-deception as an example of non-pathological delusion. In section 6, I will discuss the cases of delusional jealousy and anosognosia to show that the involvement of a motivational factor does not always indicate the normality of irrational beliefs.

2. Irrationality is not sufficient for inferring pathology

Rationality of a belief can be assessed through examining whether it conforms to the three norms of rationality conceptualized by Bortolotti [4].

Epistemic rationality: it is formed based on sufficient evidence, and reformed when contradicting evidence appears.

Procedural rationality: it is consistent with other beliefs and other mental states.

Agential rationality: it is reflected in its owner's actions.

She insists that pathological delusions are irrational in that they do not conform to those norms [4, 7]. In addition, she stressed that there exists an abundant violation of the same norms among mundane beliefs, too. The following are some examples.

First, delusions do not conform to the norms of epistemic rationality. Schneider described a man with delusional perception who saw a dog sitting in front of a convent, and was suddenly convinced that he had received a divine revelation ([8], p. 105). Patients with severe depression sometimes develop the delusion of poverty, and falsely hold that they are destitute although they have adequate savings. In such cases, the delusion may persist even when the patient is shown a financial record that indicates abundant wealth. But epistemic rationality is also violated by mundane beliefs, such as false and groundless beliefs about racial discrimination ([4], p. 149f).

Second, most delusions lack procedural rationality; inconsistency with other beliefs held by the individual does not move the individual. Consider Cotard's delusion, where the afflicted person holds that he is dead. It does not matter to the patient that he would be unable to say so if he were in fact dead [9]. It is also common that those who are highly educated and of a scientific worldview often have superstitious beliefs that contradict their

scientific beliefs ([4], p. 85).

Third, most delusions deviate from agential rationality. For instance, a man with Capgras delusion, who holds that his wife has been replaced by an impostor, may not ask the police to search for his “real” wife [10]. Patients with chronic schizophrenia often exhibit what is termed “double bookkeeping” (*doppelte Buchführung*) ([11], p. 47). In the state of double bookkeeping, patients live in both the real and the delusional world, without falling into confusion between them. Bleurer described a female patient who falsely thought the doctor in charge was her former sweetheart, but acknowledged that he was her doctor when she received a medical examination from him (*Ibid.*). However, similar discrepancies between one’s behavior and verbally expressed attitudes are prevalent, and are called *hypocrisy* ([4], p. 172f).

Bortolotti has shown that the difference between mundane irrational beliefs and pathological delusions is only a matter of degree with respect to their irrationality, and it is common for us to hold irrational beliefs. Yet commonness is not synonymous with normality. The fact that the majority of people have one or more bad teeth or pimples does not preclude dental caries and acne from being classified as kinds of illnesses. If irrationality is a deviation from ideality, should we not think that all irrational beliefs are symptomatic of some underlying pathology?

A couple of reasons can be raised against this way of thinking. First, perfect rationality is an unreachable ideal rather than a basic requirement for a human being. Reznick attacks the assumption “that if some individual is not functioning to the best of his abilities or potential, or less well than some paragon, he is ill,” naming it the “Superman fallacy” ([12], p. 33). He points out that one might be “less powerful than Olympic weight-lifters, and slower than Olympic sprinters” without suffering from “muscular diseases” (*Ibid.*, p. 34). Similarly, one can be less than perfectly rational without being ill.

Second, the function of the human cognitive apparatus may not be to aim at the maximization of rationality in the first place. Whatever the actual implementation is, the human cognitive apparatus is optimized to guide behaviors that primarily maximize an organism’s chance of survival and reproduction, not its rationality. Stich stressed this point and raised a couple of reasons why the pursuit of fitness does not necessarily coincide with the pursuit of rationality ([13], Ch. 3). One of these reasons is as follows: Acknowledging that a higher degree of rationality is one of the contributors to increasing an organism’s fitness, other factors, such as higher processing speed and less energy consumption during cognitive processing, are also important. Higher rationality and less resource consumption are usually a trade-off: It may be that less reliable and contradictory but quick and efficient cognitive processing is preferred to highly reliable and consistent but time- and energy-consuming cognitive processing, from an evolutionary point of view (*Ibid.*, p. 61).

Dental caries and acne are undoubtedly kinds of illnesses even if they are common. One of the reasons is that they are caused by a biologically defined and unambiguously pathological process, namely bacterial infection. This indicates that in order to judge an irrational belief to be pathological, there must be further information that suggests an underlying pathology.

3. Murphy's proposal

An irrational belief is pathological when it is caused by some illness. Citing Wakefield's well-known description of illness (or disorder) as "harmful dysfunction" [14], Miyazono argued that typical delusions are deemed pathological because they are caused by some sort of harmful dysfunction [15]. I will follow this understanding of pathology. The question is how to judge whether an irrational belief is caused by some dysfunction. This question is crucial, because clinicians are pressed for a decision even though the essential nature of major psychiatric disorders is still obscure, and there is still no clinically apparent biomarker of the dysfunctions responsible for irrational beliefs.

For that matter, Murphy suggests as follows:

The problem with delusions is not that they violate epistemic norms, but that they violate expectations about the way other people behave, including their doxastic behaviour. The violations are taken to indicate something wrong with the machinery under the hood of the human being, but the attribution of delusion is grounded by assumptions about psychological causes, not epistemic norms. ([16], p. 118)

He coined the notion of folk epistemology, which refers to our model of how human beings normally acquire beliefs. He proposes that the hallmark of pathological delusion is its inexplicability according to folk epistemology. As a matter of convenience, I will separate this point into the following two features: un-understandability and uniqueness.

Un-understandability

When we can follow continuously the psychological trajectories leading an individual to form irrational beliefs, those irrational beliefs become less pathological. Here, I would like to explain the notion of genetic understandability as introduced by Jaspers. Genetic understanding signifies "perceiving the meaning of psychic connections and the emergence of one psychic phenomenon from another" ([17], p. 27). The transitions of psychical states are understandable when we are able to relive them psychically in ourselves. Jaspers insists that delusions found among patients with schizophrenia are not genetically understandable.

Murphy stresses the difference between rationality and understandability:

[W]e all know that there is a lot of belief formation that is psychologically, rather than purely epistemically, motivated. However much we deplore it, we can make sense of it according to our normal ways of understanding human nature. We recognize that people often believe things because they want to. ([16], p.121)

To be weak-willed, narrow-minded, and self-deceptive is human, and we may empathize with those irrationalities. A lack of genetic understandability is a sign of pathology, since it indicates a breakdown in the neurological functioning that mediates daily psychical life.

However, an influential theory of delusions hypothesizes that pathological delusions are the result of patients' cognitive effort to make sense of the abnormal experiences they

confront [18]. Maher states that delusions are “rational, *given the intensity of the experiences that they are developed to explain*” ([19], p. 105). If we adopt this hypothesis, do not all pathological delusions become *understandable* given the abnormal experiences patients suffer?

In fact, the idea that the presupposition of abnormal experiences renders pathological delusions understandable and the idea that un-understandability is one of the good indicators of an underlying pathology are consistent—even complementary—with each other. In fact, the two occurrences of “understandability” above are placed in different contexts. The former is in the context of *theoretical psychopathology*, where it is already known that the patient in question is disordered in some way, and researchers inquire into the nature of a dysfunction that, together with the reactions made by the patient’s remaining mental functioning, explains the symptoms the patient exhibits. The latter is in the context of *clinical practice*, where it is not yet sure whether the client who visits a psychiatrist is disordered, and the psychiatrist, listening to the history that brought the client to the clinic, contemplates whether the client’s complaint is the result of some underlying dysfunction. Un-understandability, which I want to present here, is in the latter context.

Cooper considers understanding to be a channel of recognition that utilizes one’s own mental processes to simulate those of another person ([20], Ch. 5). According to this interpretation, a person is genetically understandable when her actual behavior and psychical transition are possible results of simulation. This is parallel to checking if a person has a fever by putting your forehead on hers: we examine whether a person’s mind is normal by measuring it against our own.

Uniqueness

The DSM states that any beliefs that are “ordinarily accepted by other members of the person's culture or subculture” are not delusions, even if they are false and firmly held. Murphy indicates the reason for the exemption:

The cultural exemption means that religious or other culturally apt beliefs, no matter how strange they may appear, are not delusional because we think it is normal for humans to accept or profess the religious beliefs of their culture, or at least some shared religious belief. ([16], p. 119)

Shared irrational beliefs usually have external causes. When a mass outbreak of febrile illness is observed, we estimate that the illness is infectious. Similarly, when irrational beliefs are shared among a group of people, we estimate that they are spread by social learning. By contrast, when a person holds an irrational belief whose content is unique, it is more likely to have internal causes, such as illness.

I agree with Murphy in that those two features are good indicators of an underlying pathology. However, they are not without pitfalls. First, the judgement of understandability is subjective, and may vary between examiners. In the United States, where white doctors

outnumber black or Hispanic ones, it is reported that black and Hispanic patients with bipolar disorder are at a higher risk than whites of being misdiagnosed as having schizophrenia [21]. Given that the diagnosis of schizophrenia implies a more profound un-understandability than the diagnosis of bipolar disorder, the result suggests that when the examiner and examinee do not share a cultural or socio-economic background, the simulation becomes more difficult and we become biased towards incomprehensibility.

Second, if religious beliefs are diagnosed as non-pathological only when they are socially learned, should it be understood that all founders of new religions are mentally ill, for they originated new religious beliefs not taught to them by others? The answer seems to be “no.” Sims proposes that newly conceived religious beliefs are distinguished from religious delusions on the ground that the latter conform to typical symptoms of known psychiatric illness, are accompanied by other recognizable symptoms of mental illness in other areas of life, and derange the subject’s lifestyle, rather than enriching personal experience [22, 23].

Therefore, in addition to the points introduced by Murphy, there are still other clinical features that should be considered when we judge whether a belief is pathological.

4. Information indicating an underlying pathology

Judging whether an irrational belief is caused by some dysfunction is based, as Cooper has noted, on *the inference to the best explanation* from various clinical information.

Here we have distinguished between problems that are best explained in personal terms and those that are best explained in sub-personal terms. The former problems are ethical or political problems; the latter are potentially medical problems. (...) What matters is the nature of the explanation for norm violation, not the nature of the norm that is violated. ([20], p. 19)

Whereas all irrational beliefs more or less violate the norms of rationality, whether or not an irrational belief is pathological relates to “the nature of the explanation for norm violation.”

The “best explanation” is a matter of relative comparison. We regard an irrational belief as pathological when we have more evidence indicating that it is caused by some underlying dysfunction than evidence indicating that it is within normal psychological phenomena. Murphy indicated the features that make normal psychological explanations less likely, rendering a medical explanation comparatively superior. In addition, there are features that straightforwardly increase the likelihood of a medical explanation for irrational beliefs. The following are four features that increase the symptom-likeness of irrational beliefs.

Coexisting psycho-physiological disturbances and/or decreased levels of functioning

Currently, mental disorders are diagnosed based on the combination and timeline of multiple mental and physiological disturbances that comprise a syndrome. This is because the observation of multiple psychological and physiological disturbances in a single subject suggests there is an underlying common cause of their co-occurrence and covariance [24].

The DSM's definition of mental disorders reflects this. As a result, an irrational belief is more symptom-like if accompanied by other psychological or physiological disturbances that jointly justify the diagnosis of a mental disorder.

For instance, groundless persecutory ideations are more symptom-like when observed alongside hallucinations, insomnia, loss of appetite, and disorganized behavior than when observed alone. Similarly, disproportionately self-accusatory thoughts that are observed only when the subject suffers from a severe depressive mood, and not when the depressive mood is alleviated, are more symptom-like than those that persist irrespective of affective or behavioral disturbances.

Likewise, some people with irrational beliefs are able to care for themselves, while others are not. Irrational beliefs are more symptom-like in the latter cases, since a decrease in functioning suggests an underlying cognitive and/or volitional dysfunction that is symptomatic of illness.⁴ Note that decreases in levels of functioning here must be greater than are expected from any interpersonal problems attributable to the existence of the beliefs themselves.

Preceding organic diseases known to be associated with irrational beliefs

Some brain diseases are known to be accompanied by delusions. Kumral & Östürk reported that among 360 patients who had experienced strokes, 15 developed delusional ideation, all of whom had right hemispheric lesions [25]. This report strongly indicates that right hemispheric stroke is causally relevant to the formation of delusions. Hence, if a person develops a delusion upon experiencing a right hemispheric stroke, there is a *prima facie* reason to consider that it is a symptom of the stroke. Note that the relationship between organic diseases and delusion is not so straightforward. As this study reveals, most stroke patients do not develop delusions; conversely, most patients with delusions show no detectable organic abnormality. The coexistence of irrational beliefs and organic disease alone is insufficient for establishing the pathological nature of irrational beliefs. Rather, the chronological relationship, namely, no prior history of irrational beliefs and their sudden development following the onset of organic disease, is more informative.

Bizarreness of content

Delusions with bizarre content were considered indicative of schizophrenia in the fourth edition of the diagnostic and statistical manual of mental disorders ([26], p. 312). For example, the delusion that a neighbor is intentionally generating ultralow-frequency sound to annoy you is not bizarre, since the content of this delusion could actually be the case. By contrast, the delusion that “an outside force has removed the patient’s internal organs and replaced them with someone else’s organs without leaving any wounds or scars” is more

⁴ This is one of the differentiating features between delusional disorder and schizophrenia. In the former, “[a]part from the impact of the delusion(s) or its ramifications, functioning is not markedly impaired” ([3], p. 90), whereas in the latter, the “level of functioning in one or more major areas, such as work, interpersonal relations, or self-care, is markedly below the level achieved prior to the onset” (Ibid., p. 99), which is associated with volitional or cognitive impairment (Ibid., p. 100).

symptom-like, since its content is unrealistic and bizarre ([3], p. 87).

Bizarre beliefs are likely to be caused by abnormal and peculiar experiences, which themselves are a reflection of some underlying dysfunction. For example, the delusion of passivity is found among patients with schizophrenia. They claim that some external force has control over their own actions or thoughts. Frith proposed that patients with schizophrenia have some failures in the self-monitoring of their own intentions [27]. As a result, their actions and thoughts are experienced as if they are not derived from their own will. The delusion of passivity is expected, given those unusual experiences.

Response to medical treatments

There are many illnesses for which no effective treatment is known. Therefore, a lack of response to medical treatments is not a sign of a condition's normality. However, if a problematic condition is resolved by medical treatments (pharmacotherapy, physical therapy, etc.), this is one of the signs indicating that the condition in question is caused by some underlying dysfunction.

For example, if a person's suspicious idea is resolved after the administration of anti-psychotic drugs, it is a *prima facie* reason to think that the person had some dysfunction remedied by that medication. Another example is a female patient with anosognosia (denial of one's own hemiplegia after contralateral cerebral damage), who, after the irrigation of her left ear canal with ice cold water, recovered the insight that her left arm is paralyzed [28].

The above lists are intended to be neither complete nor non-overlapping. Thus, other relevant factors may also exist. The more fully an irrational belief satisfies the above features, the more confidently we can diagnose the belief as pathological. However, none of these features is necessary for an irrational belief to be deemed pathological.⁵ For example, a grandiose idea that one is a genius inventor is pathological when accompanied by a prolonged elated mood, decreased need for sleep, distractibility, talkativeness, etc., even if no organic abnormality is detected and the content is not bizarre. When isolated Capgras delusion is developed after the onset of right cerebral infarction, we can be sure that the delusion is a symptom of the infarction based on the chronological relationship between the infarction and the delusion, and because of the known association between Capgras

⁵ Miyazono rejected four positions, according to which delusions are pathological: (1) they are strange, (2) they are extremely irrational, (3) they are not explained by the folk psychological framework, and (4) responsibility-grounding capacities are impaired in those with delusions [15]. Among them, strangeness corresponds to bizarreness, and inexplicability by folk psychology roughly corresponds to the un-understandability I have already discussed. I agree with Miyazono in that those alternative proposals fail to explain what being pathological consists in. My contention is that the above-mentioned features are good indicators of an underlying dysfunction: Those features are not the *criteria* of being pathological, but the *signs* from which to infer the best explanation of the observed phenomena.

delusion and right cerebral impairment [29].

5. Not all delusions are pathological

Horwitz and Wakefield emphasize that “designed responses to severe losses can also be quite severe—indeed, as severe as some depressive disorders—and can potentially satisfy DSM diagnostic criteria for Major Depressive Disorder despite not being disordered” ([1], p. 29). In line with this, I argue that even gross and prolonged irrationality does not necessarily imply pathology.

Currently, the word “delusion” is sometimes used to name culturally unaccepted incorrigible false beliefs in general; in other cases, it refers to incorrigible false beliefs that are caused by illness. One of the causes for this confusion is that Jaspers distinguished “delusions proper” (echte Wahn) from “delusion-like ideas” (Wahnhafte Ideen) ([17], p. 96). He proposed that the former should be specifically applied to phenomena accompanied by peculiar experiences and changes in personality, as typically seen among patients with schizophrenia ([17], p. 106). Those who distinguish delusions from delusion-like ideas consider schizophrenic delusion as the paradigm case of delusions, and regard delusions as necessarily pathological (e.g., [16][30]). In contrast, DSM classifies both as delusions. In the following, “delusions” refers to any false beliefs that are unshared by one’s culture and that are firmly held even when confronted by clear counterevidence. Further, “pathological delusions” shall refer to delusions that are symptoms of illness. The distinction is important because, as I will argue, not all delusions are pathological.

There have been two approaches—motivational and deficit—for the theoretical explanation of delusions [31]. Whereas motivational approaches treat delusions as extreme instances of self-deception, deficit approaches regard delusions as the consequence of a dysfunction of the psychological machinery responsible for belief formation and maintenance. The motivational approach sees delusions within the realm of normal psychology as far as the motivation in question is normal, whereas the deficit approach sees delusions as pathological phenomena.

Self-deception is one of the major causes of normal irrational beliefs. An oft-described case is a mother who refuses to acknowledge that her child is guilty of a crime despite overwhelming evidence that the guilty verdict is correct ([16], p. 120). Another example is a man whose girlfriend announces to him that their relationship is over. He begins to stalk her, believing that she still loves him and that she is acting coldly toward him in order to challenge his fidelity. When the mother maintains her belief even when she is presented evidence to the contrary, her belief that her child is innocent fits the definition of delusion, and furthermore, suffices the diagnostic criteria of delusional disorder if it persists for more than a month.⁶ Her delusion is in no way pathological, however. Her acquiring and

⁶ Murphy writes, “The mother appears to fit the DSM definition of delusion, yet many people I have asked about this case feel the pull of a different position (mothers, especially, feel this)” ([16], p.120). He holds back from definitely calling a case of self-deception a delusion because he restricts the term delusion for pathological cases.

maintaining the belief is understandable given her desire for it to be the case, even if it violates the epistemic norms of rationality.

Is the fact that a self-deception is so profound as to suffice the definition of delusion not decisive evidence of an underlying pathology? Those who support the modified two-factor account of delusion formation consider, in addition to the motivational factor, that there must be a “second factor” that explains the adoption and maintenance of the belief in the absence of appropriate evidence [32]. If the second factor is considered as some cognitive deficit, it should be concluded that all cases of self-deception culminating in delusions are also based on mental dysfunction and are pathological. This need not be the case, however. Acknowledging the validity of the modified two-factor account of delusion, the nature of the second factor remains a matter of debate; the second factor may be a non-pathological variation that results in biased belief evaluation instead of some cognitive deficit (Ibid, p. 317). If she has no coexisting psycho-physiological disturbances, decreased levels of functioning, or preceding organic diseases, there is no information positively supporting the coexistence of cognitive dysfunction.

It is not unusual for people to adhere to false beliefs. When socio-cultural perspectives do not give a good account of these beliefs, the beliefs fit the definition of delusions. However, if the evidence in favor of a medical understanding of those delusions is scarce, and when we are able to understand why they are formed given the human weaknesses, limitations, and motivations shared by us all, they are judged non-pathological.

6. Motivated irrationality and pathology of belief

I have argued that when an irrational belief is caused by motivational factors, it should be counted as non-pathological. But the involvement of motivational factors is not always indicative of normality, because (1) the motivation itself may be pathological, and (2) if the motivation is normal, it may not be the cause of the core delusional beliefs. In the following, I will look at the case of delusional jealousy and anosognosia in order to discuss the more nuanced relationship between motivated irrationality and pathology.

Delusional jealousy

Jaspers reviewed the details of several cases in which delusions of jealousy were exhibited [33]. He argued that some seemed to be the result of pathological processes (Prozeß) inasmuch as they developed over a short period in the patients’ middle age without obvious external causes, and were accompanied by subtle psychological disturbances such as hypomania and delusions other than that of jealousy. He considered that some other delusions are the result of the development (Entwicklung) of deviated personalities, given that they are typically observed among people who are naturally suspicious or paranoid, that the delusions form in response to external events throughout the patients’ lifetime, and that they develop without obvious collateral psychological disturbances.

Considering pure cases of delusional jealousy as normal psychological phenomena, however, meets an obstacle because the content of delusion seems to run counter to one’s desires: the infidelity of the spouse is never pleasurable for the subject. Mele proposed that jealous suspicion is expected, given our tendency to try to minimize costly errors ([34], Ch.

5). When a subject is far more averse to falsely believing p , where in fact $\neg p$ is the case, than falsely believing $\neg p$, where in fact p is the case, it is very difficult for the subject to believe p , and the subject may always suspect that $\neg p$ is the case in order to avoid falsely believing otherwise. For jealous people, it is hypothesized that falsely believing in the spouse's fidelity is more undesirable than falsely believing in the spouse's infidelity (Ibid., p. 97). Based on those hypotheses, Mele interprets delusional jealousy as a "twisted" version of motivated irrationality. In the context of evolution, those who successfully avoid harmful errors have greater fitness. Jealous people may have been adaptive because they had successfully reduced the probability of rearing unrelated children and anchored the spouse's investments [35]. In addition, it is arguable that pure cases of delusional jealousy are simply at the extreme end of garden-variety jealous suspicions.

Acknowledging all of these assumptions, it is still unclear whether delusional jealousy should be regarded as non-pathological, because it is uncertain that the extreme risk-aversiveness seen among those with delusional jealousy is properly regarded as normal motivation. Harmful quantitative deviations of basically adaptive mechanisms (e.g., hypertension and anxiety disorders) are usually regarded as medical conditions that justify therapeutic interventions, even if it is difficult, strictly speaking, to categorize them as dysfunctions.

Anosognosia

Anosognosia is a condition where the patients with (usually left-sided) paralysis owing to right cerebral hemispheric damage fail to recognize their disability and falsely assert that they can move their limbs and that they are able to perform bi-manual tasks [36].

In the case of anosognosia, no one doubts the involvement of physiological dysfunction due to organic brain damage, which in some way impairs the patient's current awareness of paralysis ([36], P. 195). However, some authors hint that anosognosia is also a kind of self-deception [37, 38]. Certainly, the patients' false belief that their limbs still move is congruent with their desire for physical intactness. Some behaviors of patients with anosognosia became reasonable only when their hidden motivations are considered. One good example is LR, a patient with left hemiplegia and anosognosia reported by Ramachandran, who confabulated that she had "severe arthritis" to excuse herself for failing to point to him with her left hand ([38], p. 349). Her confabulation seems to have the role of saving face and keeping her from confronting distressing inconsistencies between her delusional belief and the observation that her left hand did not move.

However, acknowledging that some aspects of anosognosia become comprehensible given the subject's motivation is one thing, and claiming that anosognosia is a kind of self-deception is another. The diagnosis of self-deception is warranted only when a subject's desires are *causally responsible* for her false belief. Mele proposed that passing what he calls the *impartial observer test* (henceforth IOT) is a necessary condition for a false belief to be deemed a case of self-deception. Mele writes:

As self-deception is commonly conceived, if S is self-deceived in believing that p , and D is the collection of relevant data readily available to S, then if D were made

readily available to S's impartial cognitive peers (including merely hypothetical people), those who conclude that p is false would significantly outnumber those who conclude that p is true. ([34], p.106)

An IOT probes the causal significance of motivational factors in the adoption and maintenance of false beliefs, because an IOT approximates the counterfactual question of what would happen if the subjects did not have the relevant motivation.

However, it is unrealistic to apply an IOT to anosognosia. First, it is plainly very difficult to guess how "cognitive peers" of a patient with anosognosia would respond to data: it is hard for us to know what it is like to have brain damage. It might be proposed that the problem is avoided if we ask actual patients who have brain damage similar to the target patient. However, when the answers of cognitive peers and those of the target patient differ, ambiguity about its interpretation remains: the discrepancy may not be due to the difference in their motivational attitude but due rather to the difference in the quality and extent of cognitive dysfunctions caused by their brain damage.⁷

The second problem is related to the point that in an IOT for anosognosia, one must answer questions about one's own limbs (i.e., cognitive peer X is asked if *X's limbs* move, given an impaired awareness of X's own paralysis). This must be so because one of the causes of anosognosia is a defect of the *first-person* access with which one could be aware of *one's own* paralysis, in other words, a defect in the neurocognitive underpinnings for *de se* attitudes. Asking about the paralysis of another person's limbs does not constitute an IOT relevant for anosognosia because it destroys the *de se* character of a question. Then, the trouble is the sheer difficulty of imagining an individual who is impartial about the paralysis of her own limbs. Every earthly subject wants his or her own body to move properly. Being impartial about one's own body is nothing but a motivational deficit that is suspected to be pathological itself.

Because of the above-mentioned problems, we cannot apply an IOT effectively to the cases of anosognosia, which makes it difficult to give positive proof that motivational factors have a causative role in the psychopathology of anosognosia.

In the case of LR, motivational factors are undoubtedly involved, but they may only modulate her behavior inasmuch as they alleviate the distress caused by holding the delusional belief, which itself is acquired and maintained through non-motivational factors. Davies & Coltheart proposed that those with delusion appreciate that their delusional beliefs are inconsistent with their other beliefs and many beliefs of other people ([39], p. 28f). They avoid exploring the logical and practical implications of their delusion and gloss over the inconsistencies so as to "minimize doxastic disruption" (Ibid). This is a motivational explanation of the procedural and agential irrationality of delusions. However, this type of motivational involvement is compatible with adopting a non-motivational explanation for the initial acquisition and maintenance of core delusional beliefs.

In conclusion, we can infer the normality of delusion from the involvement of

⁷ Mele also pointed this out; see [44], p. 63.

motivational factors only when the motivation itself is normal, and is causally responsible for the acquisition and maintenance of delusion. The cases of delusional jealousy and anosognosia do not seem to satisfy these requirements.

7. Conclusion

This paper described the grounds on which some irrational beliefs are judged as pathological. The distinction is made by considering whether the existence of an irrational belief is best explained by assuming some underlying dysfunction. I presented several elements that increase the likelihood of irrational beliefs having a pathological origin: un-understandability of their progression; uniqueness; coexistence with other psycho-physiological disturbances and/or concurrent decreased levels of functioning; bizarreness of content; preceding organic diseases known to be associated with irrational beliefs; and response to medical treatments.

According to the DSM diagnostic criteria, all culturally unshared incorrigible false beliefs that persist more than a month warrant the diagnosis of delusional disorder. However, severe irrationality is sometimes caused by normal human motivation rather than an underlying dysfunction. Although pure forms of self-deception may satisfy the DSM diagnosis of delusional disorder, there is no evidence suggesting that they are caused by some illness.

This paper has shed light on the problem of whether pathological delusions should be understood as an extension of mundane irrational beliefs, and ultimately shows that this depends on what aspect we focus on. As Bortolotti stresses, pathological delusions are continuous with mundane irrational beliefs in terms of their irrationality. In addition, normal motivations are involved not only in mundane irrational beliefs, but also in pathological delusions. Notwithstanding these similarities, differentiating irrational beliefs based on their causes is vital if we are interested in the evaluation and treatment of the believer. Whereas an irrational belief is normal if it is caused by normal motivation, a belief is diagnosed pathological when it is caused by some dysfunction. Those who have pathological delusions, but not normal irrational beliefs, are the potential target of medical intervention. Furthermore, moral responsibilities are absent from, or diminished in speech and actions stemming from pathological delusions, but this is not the case for normal irrational beliefs.

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