A Deceptive Curing Practice in Hunter–Gatherer Societies

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Abstract: The claim of possessing supernatural abilities is a commonly reported phenomenon across human societies. To bolster the credibility of such claims, performers may make use of illusions and sleight of hand to give the appearance of impressive powers. One common trick found among culturally independent hunter–gatherers on every continent they inhabit involves a healer ostensibly extracting from a sick person an object, such as a pebble or insect, that is supposedly causing the patient's illness. The use and functions of the 'extraction trick' are here explored across a global sample of hunter–gatherer societies (N = 74), with attention given to the possible costs and benefits accrued by performers and their patients or audiences. This and similar tricks can be highly deceptive, but they can also be undertaken for entertainment, symbolic reasons, their placebo-like utility to sick patients, or some mixture of each. The recurrent invention of the trick across independent societies, as well as its cultural inheritance and diffusion between groups, indicates that it likely appeals to certain universal facets of human psychology, where experiences of sickness and pain commonly induce one to seek interventive cures from specialists, who in turn may use deceptive displays to give the appearance of greater skill and powers.

Keywords: magic; deception; shamanism; cultural evolution; evolutionary psychology; behavioral ecology

1. Introduction

If a Selk’nam xon [medicine-man] wants to remove the ailment, he must sing and afterwards draw it out of the body with his mouth. Why do you never sing when a patient comes to you? You only give him that ‘white thing’ [aspirin]!—Tenenesk, a Selk’nam medicine man, questioning Austrian priest and ethnologist Martin Gusinde [1].

Inquiry into magic tricks and their antiquity have tended to focus on practices found in larger-scale, literate societies [2–5]. A common starting point for scholars of magic has been the Old Testament, in particular Exodus 7, where at God’s command, Aaron casts down his staff in front of the Pharaoh and it becomes a serpent. The Pharaoh then summons his magicians, who respond in kind, making use of their own secret methods to turn their staves into serpents [3]. This account has plagued the minds of many writers since, who, taking it quite literally, have attempted to adduce the method used by the court magicians to perform their trick, in imitation of the presumably genuine miracle found in Aaron’s act [6]. Methods involving elaborate preparation have been proposed, such as linen painted to perfectly resemble a serpent attached to wire that is then animated through sleight of hand by the magician [7]. To this proposal, Glanvill (1681) raised a number of objections, including noting that the text of the Old Testament specified that Aaron’s snake ate those of the Pharaoh’s magician’s: “What, did they swallow the Wiars and Pictures? It seems they were very artificially done indeed, that the true Serpents mistook them for real ones . . . ” (see also [6,8]).

While the account of Aaron and the serpents remains mysterious, if one wishes to reconstruct what are likely to truly be the oldest known magic tricks, there is perhaps a more appropriate place to begin. The ubiquity of shaman, healers, and other magical specialists across human societies suggests that some methods of mystical practice and
performance go back well before the emergence of agriculture, having played an important role in our species’ evolutionary psychological and cultural evolutionary history (see also [9–18]). Consequently, the ethnohistorical records of hunter–g gatherer populations found in different parts of the world provide a key source of data for reconstructing the deep history of these and other behaviors across human societies [19–23]. Here, I discuss the uses and functions of one particularly common method of magical performance, which I will call the ‘extraction trick’.

One of the earliest and most comprehensive accounts of the extraction trick comes from anthropologist Edward Tylor [24]. Tylor describes the practice as following from ‘the idea that disease is commonly caused by bits of wood, stone, hair, or other foreign substances, having got inside the body of the patient. Accordingly, the malady is to be cured by the medicine-man extracting the hurtful things, usually by sucking the affected part till they come out’ [24]. Tylor recognized the performance as a worldwide practice across diverse societies, although he interpreted it as a survival of an earlier stage of culture, considering it unlikely that the trick would have been independently invented in so many different places.

While Tylor was working from the model of unilinear cultural evolution popular in 19th century anthropology, from a more directly ‘Darwinian’ perspective rooted in current day thinking in behavioral ecology, cultural evolution, and evolutionary psychology, we might expect the trick to be recurrently (re)invented due to universal facets of human psychology, particularly in socioecological contexts where it may be advantageous [25–27]. The purpose of this investigation into the extraction trick is to consider the deep history of magical performance from the ethnohistorical evidence of independent hunter–g gatherer societies all over the world and to situate these findings in relation to existing theoretical work on healing and supernatural practices across traditional societies see [9–17,22].

2. Materials and Methods

I searched the electronic Human Relations Area Files (eHRAF) World Cultures database, using the Outline of Cultural Materials (OCM) identifier “Magical and mental therapy”, to find examples of the extraction trick across societies categorized as at least “Primarily hunter–gathers”, defined as deriving greater than 56% of subsistence from wild resources, per the coding system on eHRAF. I also manually searched key terms (“suck”, “sucking”, “sucked”, “extract”, “extracting”, OR “extracted”) for additional examples that may not have been captured under the OCM code. The eHRAF World Cultures database is a collection of ethnographic documents from societies all over the world, with each paragraph indexed by anthropologists, allowing for detailed cross-cultural comparisons. The eHRAF database does contain fewer hunter–gatherer societies for the African and Australian continents than from other areas, however, so I supplemented my eHRAF search with additional ethnographic sources for these two regions. Data for all societies except the Xam, Damara, Naron, and Angola Bushmen of Africa and the Larrakia, Martu, Pitapita, Pitjantjatjara, Yaraldi, Yolngu, Warlpiri, and Wurundjeri of Australia came from eHRAF World Cultures (62 of the 74 total societies).

3. Results

Table S1 provides examples of the trick from 74 hunter–gatherer societies, with at least 6 societies represented from each continent in the sample (Africa, Asia, Australia, North America, and South America) plus two societies from Central America and the Caribbean. Of the 89 hunter–gatherer societies currently included on eHRAF, my search yielded evidence for the extraction trick among 62 of them (70%, Africa = 2/4, Asia = 6/10, Australia = 2/2, North America = 29/44, Central America = 2/2, South America = 20/23). This should be considered a conservative estimate for three reasons: ethnographers may not always observe or mention these kind of practices, my search procedure may have failed to uncover some documented cases in the database, and I did not conduct a thorough review of ethnographic materials for societies where I did not find evidence of the trick in
the initial search, meaning that absence of evidence for a society is better thought of as ‘no
data’ rather than a true ‘absence’.

There appear to be multiple factors that make this trick appealing to performers, patients, and audiences alike. For one, while there is clearly plenty of room for variation in skill and method, the trick can be relatively straightforward to produce and independently invent, with one common procedure involving using one’s mouth as a convenient place for concealing the object and then apparently ‘sucking’ it out directly from the patient (Table 1).

Table 1. Methods used by healers for extracting an ostensibly illness-causing object across 74 hunter–gatherer societies (Africa = 7, Asia = 6, Australia = 10, North America = 29, Central America & Caribbean = 2, South America = 20). The symbol (-) denotes that the healer in these cases was not a native but a member of a neighboring society.

| Culture Region               | Sucking          | Sleight of Hand | Snoring         | Horn, Rattle, or Tube                  |
|------------------------------|------------------|-----------------|-----------------|----------------------------------------|
| Africa                       | Damara, G/wi     | Auin, Naron     | Angola Bushmen, | Mbuti (-)                              |
| Asia                         | Nenets, Semang,  |                 |                 |                                        |
|                              | Yukaghir         |                 | Koryak, Nenets,|                                        |
|                              |                  |                 | Sama-Bajau,     |                                        |
|                              |                  |                 | Selkup          |                                        |
| Australia                    | Arunta, Larrakia,|                 | Martu, Pitapita,|                                        |
|                              | Pitjanjatajara,  |                 | Wurundjeri,     |                                        |
|                              | Tiwi, Warlpiri,  |                 | Yaraldi         |                                        |
|                              | Yolngu           |                 |                 |                                        |
| North America                | Alutiiq, Assinboine, Blackfoot, Chipewyan, Comanche, Copper Inuit, Creek, Crow, Eastern Apache, Eyak, Kaska, Klamath, Kutenai, Lower Chinook, Northern Paiute, Nuu-chah-nulth, Ojibwa, Pomo, Quinault, Slavey, Tubatulabal, Ute, Western Woods Cree, Yokuts, Yuk, Yurok | Alutiiq, Blackfoot, Gros Ventre, Lower Chinook, Omaha, Twana | Comanche, Crow, Eastern Apache, Quinault |                                        |
| Central America & Caribbean | Island Carib, Miskito |                 |                 |                                        |
| South America                | Abipón, Bororo, Canela, Chorote, Enxet and Enlhet, Karajá, Mataco, Mundurucu, Nambicuara, Ona, River Carib, Sirionó (-), Tehuelche, Terena, Ticuna, Tupinamba | Yaghan, Xokleng | Warao |                                        |
Among Bushmen hunter–gatherers of Angola and South Africa, the nostril instead was used, with the objects ‘snored’ in and then ‘sneezed’ out [28,29] (Table S1). As the snoring procedure only seems to be found among these African hunter–gatherers, while the sucking method was found in every major region, this likely indicates both cross-cultural convergence through independent invention and the importance of social learning, cultural inheritance, and migration contributing to its spread into other populations [26,30–32]. Possible examples are found of the diffusion of this trick from outsiders into groups such as the Mbuti of Central Africa, Tiwi of North Australia, and Sirionó of Amazonia (Table S1).

The recurrent independent invention of this practice, as well as its cross-cultural persistence, raises some questions about its possible functions, for both performers and patients. For the healer, the extraction trick appears to offer an opportunity to entertain, demonstrate skill or power in a culturally valued domain, and potentially receive material payment or status benefits in return [15]. Among the Kaska of British Columbia, payment was voluntary and varied with the patient’s economic situation, as well as the healer’s success at enacting a cure [33]. Payment was similarly said to have been contingent on the healer’s success among the Canela of Brazil [34]. Among the Warao of Venezuela, however, payment appears to have been obligatory, and patients unable to provide the requisite compensation could end up in the debt of the shaman [35]. Kaufmann (1910) notes that doctors were paid among the Auin of Namibia and Botswana as well, but he does not elaborate further [36].

Barclay (1939) describes a case among the Tiwi at the Bathurst Island Mission in Australia in which a native man who had been off employed for some years as a pearling lugger returned to the island and set up shop as a ‘witch-doctor’ [37]. When treating one woman who seemed on the verge of death, the doctor ‘applied his lips to her chest and appeared to suck out a dirty, rusty rag, a piece of wire, and a few pebbles, together with some blood (which he probably produced by biting his tongue)’ [37]. The woman ultimately died, but the people watching were apparently impressed with the doctor’s performance, and he was rewarded with a supply of sticks of tobacco as tribute [37].

In addition to the material costs patients can owe, they face opportunity costs in the possibility of alternative, and potentially more efficacious, cures. If alternative effective medical therapies are not locally available, such costs may be negligible or nonexistent, although in rare cases, the extraction trick appears to involve some cutting or use of force applied directly to the patient, which represents a more direct and potentially significant source of harm. Chewings (1936) reports hearing the loud screams of a patient while she was out of his view, being ‘operated’ on by a medicine man among the Arunta of Central Australia [38] (Table S1). Among the Nenets of Siberia, Islavin (1847) describes the use of a sharp instrument to cut directly into a patient’s stomach and extract a worm when they are sick but also reports the use of the simple ‘sucking’ trick for the same purpose, without any cutting [39] (Table S1).

Biting one’s tongue may be a common procedure for producing blood without needing to wound the patient directly when using the sucking method of the trick, as in the Tiwi case quoted above. According to one informant among the Selk’nam of Tierra del Fuego, sucking out lots of blood without leaving a wound was proof of good healing:

That woman sucked a great deal of blood out of me, but I saw no wound on my thigh. One detects here neither traces of a scar nor of a bite. That is how well this woman was able to cure me and other people! [1].

The extraction trick appears to be intuitive in relation to cross-culturally common folk theories of biology and disease, beginning with the notion that sickness is often caused by something harmful lodged within the body and logically following that the extraction of the object should work as a cure, not too dissimilar to other cross-culturally common medical practices such as bloodletting [40,41]. In his study of western North American societies, Jorgensen (1980) found that in 155 out of 165 tribes with sufficient data in his sample (94%), there was a belief that illness is caused by a foreign object lodged within the body [42].
Table 2. Objects ostensibly removed by a healer when performing the extraction trick on a sick patient across hunter-gatherer societies. The specific materials extracted were not always noted by the ethnographer, but they were identified for 54 of the 74 societies in the total sample (73% of societies in the sample, Africa = 4/7, Asia = 4/6, Australia = 10/10, North America = 22/29, Central America & Caribbean = 2/2, South America = 12/20).

| Culture Region          | Wood or Bone | Stones or Pebbles | Arrows or Other Sharp Objects | Small Animals | Blood              |
|-------------------------|--------------|-------------------|-------------------------------|---------------|--------------------|
| Africa                  | Auin, Ixam   | G/wi              |                               | Damara, Ixam  |                    |
| Asia                    |              |                   | Arunta, Martu, Pitapita, Pitjantjatjara, Warlpiri, Yaraldi, Yolngu | Nenets, Sama-Bajau, Semang | Selkap |
| Australia               |              |                   | Arunta, Martu, Pitapita, Tiwi, Warlpiri, Wurundjeri | Martu, Tiwi   | Larrakia, Pitjantjatjara, Tiwi |
| North America           | Chipewyan, Eastern Apache, Gros Ventre, Klamath, Lower Chinook, Ojibwa | Chipewyan, Comanche, Copper Inuit, Crow, Pomo, Quinault, Tubatulabal, Western Woods Cree | Eastern Apache, Nuu-chah-nulth, Ojibwa, Slavey, Western Woods Cree, Yokuts | Assiniboine, Eastern Apache, Gros Ventre, Kaska, Klamath, Northern Paiute, Pomo, Quinault, Slavey, Tubatulabal, Twana, Yokuts |
| Central America & Caribbean | Island Carib, Miskito | Island Carib | Island Carib, Miskito | Abipón, Bororo, Enhet, Baro, Carib, Mataco, Terena, Tupinamba | Abipón, Bororo, Enhet, Terena |
| South America           | Enxet and Enlhet, Mataco, Mundurucu, Terena, Tupinamba | Bororo, River Carib, Mataco, Terena, Tupinamba | Abipón, Mataco, Namibiura, Sirionó, Ticuna | Abipón, Bororo, Enhet, Terena | Ona |

Note that by ‘intuitive’, I do not mean ‘innate’—it could be intuitive because it is consistent with experiences people commonly have during development. Pain is often experienced as being localized on or within a certain part of the body, and people in every society are likely to have relevant experiences of extracting harmful and painful objects from their body, such as the skin being punctured by splinters, plant thorns, animal stingers, etc. This intuitive plausibility of the extraction trick likely plays a key role in its prevalence and persistence across societies [43]. Common objects extracted from patients include bits of wood or bone, pebbles, arrows, worms, and insects (Tables 2 and S1). In each case, the objects seem to be somewhat small, commonplace within the local socioecological context, and yet foreign to a human body and thus, easily concealed and simple to procure. Moreover, it is intuitive to grasp that if indeed such objects were actually stuck within one’s body, they would logically be causing a great deal of harm.

For the patient, there could also be some placebo-like efficacy to this kind of performance, particularly for illnesses with strong psychosomatic or culture-bound influences [44–48]. The
extraction—and often display—to the patient of the malevolent object supposedly causing the sickness is on one level symbolic [49]. The performance potentially can help the patient reevaluate their own illness in a guided manner that may lead to direct health improvement or to the improved management of symptoms within that particular cultural context [50,51]. This and other tricks by healers can also be used as adjuncts to potentially more practical medications, as medical specialists and the use of effective traditional remedies may have played an important role across human societies throughout much of our evolutionary history [14,52,53].

There does appear to be a considerable overlap between the extraction trick and other traditional medical practices that do not require any sleight of hand or special trickery. Among the !Ko of Botswana, it was stated, “Sometimes we suck the blood from a cut with an animal’s horn. This takes the sickness out of the body” [54]. In contexts where bloodletting is already proscribed as a traditional remedy [40], the addition of the extraction trick can offer a way for an individual to distinguish themselves as a healer, particularly if they face strong competition from others to fill such a role [15]. Alternative methods of ‘extracting’ sickness from a patient without the use of this particular trick have also been reported. Among the Nharo of Botswana, illnesses were often healed by a medicine man who performs an elaborate trance dance that could include walking into fire and the eating of burning hot coals [55]. While the medicine man was thought to spiritually extract the sickness from the patient, no physical object appears to be involved during this performance [55].

Kaufmann (1910) writes that among the Auin of Namibia and Botswana, “In the treatment of the sick, charlatanism seems to be mixed with a considerable portion of actual experience and knowledge” [36]. While deception is intrinsically involved in the performance of the extraction trick, in many circumstances it may be a mistake to lean too heavily on this dimension alone without recognizing the symbolic and cultural meaning involved in the display. As Elkin (1949) puts it,

> When a native doctor sucks a magical bone out of a sick person’s abdomen, and shows it to those around and to the patient, he is not a mere charlatan, bluffing his fellows because he introduced and produced the bone at the psychological moment by sleight of hand. Nor is he just play-acting for effect when, having rubbed the affected part of his patient in the “correct” manner, he gathers an invisible something in his hands, and solemnly walking a few steps away, casts “it” into the air with a very decided jerk of the arms and opening of the hands. These are two of a number of traditional methods which he has learnt, and in which he and all believe—methods for extracting the ill from the patient, and so giving the latter assurance (often visible) of his cure. The cause has been removed [56] (p. 7).

Elkin (1949) notes further that among the Pitjantjatjara and other Australian groups, a medicine man would often seek out a colleague for treatment when he himself was sick, indicating the genuine significance placed on these performances as a treatment for disease even among performers who are seemingly tricking their own patients [56]. The quote from the Selk’nam shaman in the epigraph of this paper provides another example of this pattern. Frank (1961) emphasizes the symbolism of the extraction trick, comparing the mentality of the patient with that of devotees partaking in communion, ‘for whom in one sense the bread and wine are the body and blood of Christ while in another they are just bread and wine’ [57]. Even as a patient may understand that the object is not literally being extracted from his body, ‘the healing ritual reinforces the image of the shaman as a powerful ally in the patient’s struggle with the malign forces that have made him ill’ [57]. Performative acts play an important and seemingly effective role in traditional healing practices found all over the world [58].
4. Conclusions

I have identified the extraction trick as a common performance found across diverse hunter–gatherer societies and one that by virtue of its presence across so many historically independent populations likely has a very long history through both inherited cultural descent and diffusion and independent invention and convergence. The differing methods of extraction, the different objects employed, the evidence for cultural diffusion, and the presence of the trick across so many independent hunter–gatherer societies suggest that while the trick has a very ancient history across cultures, as Tylor [24] argued, it is also a performance that individuals across societies can independently invent, modify, or quickly learn from others.

The trick appears cognitively intuitive to individuals in diverse social and environmental contexts, is not reliant on any complicated method or material to produce, offers room for performers to demonstrate individual skill and entertain audiences, and could potentially provide placebo-like benefits to the sick. On the other hand, in some cases, there is significant deception, material cost, and even direct physical harm to the patient subject to it. It may very well be the oldest trick in the book.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/10.3390/humans2030007/s1, Table S1: Ethnographic descriptions of the ‘extraction trick’ in 74 hunter–gatherer societies.

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