

RESEARCH ARTICLE

Hallucinatory Telepathic Experiences Induced by *Salvia divinorum*

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Abstract—Scientific investigations of extrasensory perception are scarce despite the fact that anomalous paranormal experiences are common in psychiatric and general populations. This report investigated self-reported cases of telepathy-like experiences induced by smoking *Salvia divinorum* or by ingestion of LSD. Trip reports posted on a recreational drug website have been saved and analyzed for the presence of anomalous subjective effects. Telepathy-like experiences were reported both by subjects smoking *S. divinorum* and by subjects ingesting LSD, frequently in combination with other psychoactive substances such alcohol and marijuana. Descriptions of telepathy differed in the content and the audibility of the experience. Phenomenological differences suggest that telepathy-like experiences may have different etiology. The findings are discussed in relation to the activity of mirror neurons, empathy, hallucinations, and thought disorders. The paper also proposes a theoretical framework and a questionnaire designed to investigate the phenomenology of telepathic experiences.

Keywords: *Salvia divinorum*—telepathy—thought disorders—insertion—empathy—broadcasting—mindreading—empathy—mirror neurons—LSD

Introduction

Scientific studies of extrasensory perception are scarce (Brugger & Mohr 2008) despite the fact that paranormal experiences, such as telepathy, are common in the general population (Glicksohn 1990, Ross & Joshi 1992). It has been proposed that paranormal beliefs can arise from misinterpretation of coincidence and randomness, erroneous interpretation of normal experiences, some psychological factors such as fantasy proneness, dissociativity, absorption, and susceptibility to false memories, and from the occurrence of anomalous experiences (Glicksohn 1990, Glicksohn & Barrett 2003, Brugger & Mohr

2008, French, Santomauro, Hamilton, Fox, & Thalbourne 2008). Paranormal experiences were previously associated with some psychedelic drugs (Luke 2008), and it has been found that drug users express stronger belief in paranormal phenomena (Kumar, Pekala, & Cummings 1993, Luke 2008). This report contributes to this field by investigation of hallucinatory extrasensory perception induced by smoking *Salvia divinorum* (*S. divinorum*), which is a short-acting hallucinatory plant (Vortherms & Roth 2006).

Methods

During the study of subjective effects induced by *S. divinorum* I have found descriptions of hallucinatory extrasensory perception. To explore in more detail the frequency and phenomenology of these unusual experiences, I have analyzed “trip” reports posted on the neurogroove.info website (<http://neurogroove.info>). All trip reports tagged for *S. divinorum* have been saved and analyzed for concomitant ingestion of other drugs. Reports of the combined effects of *S. divinorum* and other psychoactive substances were rejected. Remaining reports have been screened for unusual experiences such as knowledge about other people’s thoughts and the sensed presence of external objects which were perceived without the use of any known senses such as vision, hearing, or touch. Additionally, I have also collected trip reports describing effects induced by LSD in order to compare the hallucinatory telepathic experiences induced by *S. divinorum* with experiences induced by other psychoactive drugs. The analysis of subjective effects induced by LSD has been performed on trip reports posted on the neurogroove.info website from December 1999 to October 2005.

Results

Salvia divinorum

There were 72 trip reports tagged for *S. divinorum*. Nineteen reports were rejected from further analysis because they described combined effects of *S. divinorum* and other psychoactive substances. The remaining 53 reports contained descriptions of 81 trips induced by smoking (79 trips), chewing (1 trip), or combined chewing and smoking *S. divinorum* (1 trip). The wordcount of all analyzed trip reports was 40,184. Extrasensory experiences were present in 16 reports describing 20 separate trips. In most cases, the extrasensory experience has been induced by smoking *S. divinorum* with the exception of one subject who both chewed and smoked the leaves. Selected reports contained descriptions of 13 cases of sensed presence of a human, human-like creatures, or objects, 10 cases of telepathy (Table 1, Appendix A), and 4 cases of other unusual extrasensory perceptions.

TABLE 1
Telepathic Experiences Induced by *S. divinorum*

| Subject Number | Trip Number | Form of Drug | Experience Description |
|----------------|-------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | 1 | E5 | He heard their thoughts flowing within the lines of energy (<i>connecting objects in the room</i>). He heard thoughts in the same way as one can hear somebody's voice but in fact there were no words but only shapes. He heard shapes. They were talking and commenting on his every movement. |
| 2 | 1 | DL | When his friend was cutting something with a saw, he had a strange impression that Nature was revolting, that it wanted total quiet. |
| 2 | 2 | DL | It seemed to him that she wanted to send him a message that it was not yet time for. |
| 3 | 1 | E10 | He sensed the opinion of Salvia that they (<i>hallucinated numbers and signs produced by his room</i>) were always present but only now was he able to perceive them. In his head and in his entire body he felt repeated words in another language, the language of thoughts and feelings. . . . Salvia started to explain to him the entire matrix using her language, but he was not able to follow the translation of feelings into thought and words. He sensed around him a dispassionate assurance from the higher creature that he always wanted to be there. He had a thought . . . and in response he received silent/unspoken disapproval. The message "it was how it was and it was all" emanated from salvia's world. |
| 4 | 1 | E5 | In his head appeared thoughts and he replied aloud. It was a very strange feeling for him, no voices or anything like that, just such a strange feeling that was impossible to describe. He asked himself whether that is how telepathy looks? |
| 4 | 2 | E5 | He had again this feeling of strange telepathy. Something just appeared in his head and he replied aloud. |
| 5 | 1 | DL | He knew that they wanted to tell him that he would not take another hit (of salvia). He replied to them that he would take it. |
| 6 | 1 | DL | He felt the presence of two silent persons and he knew that they were friendly and that they wanted him to follow them. |
| 7 | 1 | E5 | She (<i>hallucinated girl</i>) sent thoughts to him. He heard her voice, although her lips were not moving. |
| 8 | 1 | E10 | He felt that he was sent a clear message to keep away from this plant. |

DL—dried leaf; E5—extract x 5; E10—extract x 10.

LSD

There were 72 reports describing 79 trips induced by LSD. One of the reports has been published twice with different titles. Thirty-five trip reports contained information about ingestion of other psychoactive substances such as marijuana, ecstasy, amphetamine, and alcohol, which could affect the effects induced by LSD. The high incidence of concomitant ingestion of LSD and other drugs resulted from long latency and long duration of the effects induced

by LSD (usually lasting for several hours). Because of the difficulty of finding descriptions of experiences induced only by LSD, all collected reports have been used for comparison with the effects of *S. divinorum*. The word count of all analyzed trip reports was 73,595. Nine trip reports contained descriptions of hallucinatory extrasensory perception. Two subjects reported the experience of sensed presence (friends standing behind the doors / presence of evil), whereas 8 subjects reported telepathy (Table 2, Appendix B). In most cases, the telepathy-like experiences were reported by subjects who ingested both LSD and other psychoactive substances (Table 2).

Discussion

Extrasensory perception is rarely described in medical literature because of the difficulty of classifying such phenomena and because items such as extrasensory perception, sensed presence, and telepathy are often not present

TABLE 2
Telepathic Experiences Induced by LSD
or by Combined Ingestion of LSD and Other Drugs

| Subject Number | Ingested Drugs | Experience Description |
|----------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LSD | They looked at a branch and heard the rustle of leaves. The leaves whispered words in an unintelligible language. After a while, they understood that the branch wanted to play with them and that it wanted to make friends with them. |
| 2 | LSD | It seemed to him that his friends were waiting for him behind the door and that they wanted to greet him as a newborn person. He was surprised when he opened the door and there was nobody. |
| 3 | LSD/Mj | The subject had a problem cutting the bread because the knife somehow did not want to be taken by him. |
| 4 | LSD/X | The subject mentioned the appearance of metaphysical thoughts and telepathic communication with friends. |
| 5 | LSD/Alc | The subject was talking with a friend but they could not communicate properly. It seemed to him that the friend was able to understand him without words but in fact the friend could not understand what he was talking about. |
| 6 | LSD/Mj | The subject felt that he and his dog could understand each other very well. |
| 7 | LSD/Alc | The subject looked at other people. Some of them were good but others were not so much OK. Next, the author mentioned that it was an intense extrasensory perception. |
| 8 | LSD/Alc | He hugged the tree and felt that it was alive and good. The tree \told \t him where he should go. He could see the map of the forest with the eyes of the soul. |

Alc—alcohol; Mj—marijuana; X—undefined drug; \t\t—unusual quotation marks used by the author of the trip report.

in psychiatric questionnaires. Although numerous authors have investigated the effects induced by *S. divinorum* (Siebert 1994, Gonzalez, Riba, Bouso, Gomez-Jarabo, & Barbanj 2006, Dalgarno 2007, Albertson & Grubbs 2009, Vohra, Seefeld, Cantrell, & Clark 2009, Baggott, E. Erowid, F. Erowid, Galloway, & Mendelson 2010, Sumnall, Measham, Brandt, & Cole 2010), only two papers reported effects relevant for the present study. Dalgarno (2007) reported a crippling experience of sensed presence in 1 out of 10 interviewed users of *S. divinorum*, whereas Sumnall, Measham, Brandt, & Cole (2010) reported that intoxication induced by *S. divinorum* was associated with the experience of thoughts belonging to somebody else. The present study confirms previous occasional reports (Dalgarno 2007, Sumnall, Measham, Brandt, & Cole 2010) and extends them by providing detailed descriptions of the telepathic experiences. The analysis of the effects induced by *Salvia divinorum* shows that the feeling of telepathy differs in audibility of the experience. In some cases, there is just a knowledge or feeling, whereas in other cases the subjects are able to hear the thoughts sent by others (Table 1). Another distinction can be made on the basis of the content of the telepathic experience. In some cases, the experience resembles conversation, whereas in others it is more a knowledge about the emotional state or intention of another person. Telepathic experiences were also reported by subjects ingesting LSD, often in combination with other psychoactive substances. These experiences were, however, less bizarre than in the cases of smoking *S. divinorum* and usually were related to knowledge about the intentions of other people, animals, plants, or objects.

Previous studies showed that the experience of telepathy is not restricted to the effects induced by hallucinogenic drugs. An example of telepathic experience related to the attitude of another person has been reported recently in an epileptic patient who experienced the feeling that the hallucinated unknown girl, sitting with her back turned toward him, wanted to talk (Kasper, Pauli, & Stefan 2010). Nonetheless, the phenomenology of telepathic experiences is rarely described in the literature. More information is available on the frequency of telepathic experiences both in the general population and in psychiatric patients (Greyson 1977, Ross & Joshi 1992). The study performed by Ross and Joshi (1992) revealed that 15.6% of people from the general population experienced telepathy, whereas Greyson (1977) reported that 13% of the nonschizophrenic and 40% of schizophrenic patients admitted to the psychiatric unit claimed the ability to read other people's minds. The higher prevalence of telepathic abilities among schizophrenics was associated with a higher prevalence of thought insertion, thought withdrawal, and thought broadcasting (Greyson 1977). These results suggest that the experience of telepathy can be associated with thought disorder, and similarity between telepathy and thought insertion has been already noticed by Mullins and Spence (2003). The phenomenon of

thought disorder helps us to understand the occurrence of telepathic experiences. It is, however, not sufficient to completely explain them because the experience of thought insertion can be perceived both as telepathy and as external mind control. Therefore, there is a need for an additional mechanism differentiating the experience of telepathy from the feeling of external mind control. Furthermore, because there are differences in audibility and in the content of telepathic experiences, it can be assumed that the experience of telepathy may have different etiologies. In some cases, the experience of telepathy can stem from auditory hallucinations (Podmore 1909, Dubal & Viaud-Delmon 2008, French, Santomauro, Hamilton, Fox, & Thalbourne 2008, Wackermann, Putz, & Allefeld 2008), whereas in others, it can be a thought disorder (Mullins & Spence 2003, Sims 2003). Finally, the telepathic experience can also be explained as a delusional mindreading resulting from abnormal activation of neuronal networks underlying the natural ability to guess the mental states of other people based on their behavior. Hypothetical mechanisms underlying the telepathic experiences are summarized in Figure 1. The proposed model is consistent with

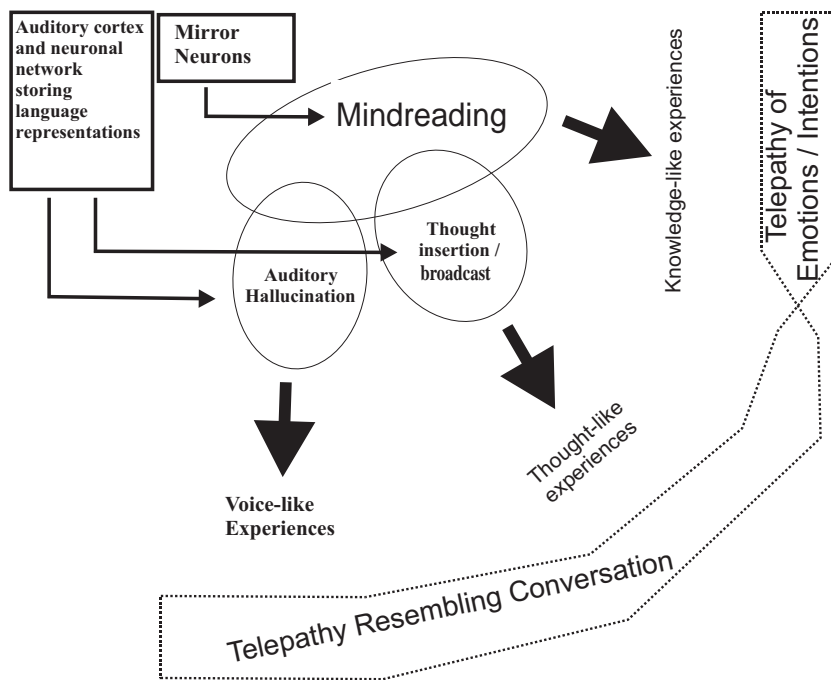


Figure 1. The model of telepathic experiences.

previous suggestions that telepathy may be associated with empathy and with activation of mirror neurons (Donovan 1997, Heyes 2010). The model is also congruent with studies that found an association between paranormal belief and schizotypy, psychosis-proneness and hallucination predisposition (Thalbourne & French 1995, Wolfradt, Oubaid, Straube, Bischoff, & Mischo 1999, Levine, Jonas, & Serper 2004, Goulding 2005, Dubal & Viaud-Delmon 2008). Although telepathic experiences can be related to different phenomena, there is a need for a common mechanism attributing the experience to another person. Therefore, I propose that this common mechanism may be the activation of a neuronal network underlying the mindreading (mirror neurons). Interestingly, the network implicated in mindreading (mirror neurons) includes the temporal cortex and the adjacent region of the anterior insula (Agnew, Bhakoo, & Puri 2007, Bastiaansen, Thioux, & Keysers 2009, Samson 2009). Therefore, there is an anatomical overlap of neuronal networks implicated in mindreading and brain regions related to telepathic experiences, auditory hallucinations, and thought disorders (Mace & Trimble 1991, Reutens, Savard, Andermann, Dubeau, & Olivier 1997, Mizukami Yamakawa, Yokoyama, Shiraishi, & Kobayashi 1999, Asheim Hansen & Brodtkorb 2003). According to the proposed model (Figure 1), the auditory hallucination associated with concomitant activation of mirror neurons will be perceived as a telepathic experience during which the subject can hear the thoughts of another person. Simultaneous thought insertion and activation of mirror neurons will be perceived as a telepathic experience without auditory quality, whereas thought insertion that is not paralleled by activation of mirror neurons will be perceived as a feeling of external mind control. When there is a predominant activation of mirror neurons, the subject will experience the delusional mindreading related to the emotional states and intentions of others. A similar approach based on the concomitant occurrence of different perceptual components has been applied recently to the problem of auditory hallucinations (Sommer, Selten, Diederer, & Blom 2010). The model presented in Figure 1 constitutes a theoretical framework that explains different telepathic experiences using already-existing theories of hallucinations and thought disorders in combination with the mechanism of mindreading. To foster further progress in understanding the neurobiology of telepathic experiences, I have prepared a questionnaire (Table 3) which is based on the phenomenology of collected reports and is consistent with the proposed theoretical framework. Although there are several available questionnaires designed to screen for paranormal experiences (Eckblad & Chapman 1983, Thalbourne & Delin 1993, Gallagher, Kumar, & Pekala 1994, Kumar, Pekala, & Gallagher 1995, Houran, Thalbourne, & Lange 2003, Tobacyk 2004), none of them investigates the phenomenology of telepathic experiences. The proposed questionnaire can be applied in combination with already-used psychiatric questionnaires such

TABLE 3
Questionnaire Screening for Telepathic Experiences
and Terminology Used to Describe Different Experiences

| Number | Question | Proposed Phenomena |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| 1 | Do you know what kind of emotions other people are experiencing when you look at them? | Normal mindreading |
| 2 | Do you know the intentions of other people when you look at them? | Normal mindreading |
| 3 | Have you ever had the feeling that you know what kind of emotions somebody experienced, although this person was not with you and you did not know what this person was doing at that moment? | Delusional mindreading |
| 4 | Have you ever had the feeling that you know the intention of somebody else, although this person was not with you and you did not know what this person was doing at that moment? | Delusional mindreading |
| 5 | Have you ever had the feeling that somebody else communicated with you by means of telepathy and the experience resembled conversation but instead of hearing other people's speech you could hear their thoughts. | Telepathy with auditory component |
| 6 | Have you ever had the feeling that somebody else communicated with you by means of telepathy and the experience resembled conversation but instead of hearing other people's speech you received their thoughts / their thoughts appeared in your mind? | Telepathy without auditory component |
| 7 | Have you ever sent messages to other people by means of telepathy? | Delusion of telepathic control of others |

as CAPE and SAPS (Andreasen 1984, Brenner, Schmitz, Pawliuk, Fathalli, Joobar, Ciampi, & King 2007) to screen psychiatric and neurological patients, the general population, and drug users for telepathic experiences in addition to other psychic experiences.

Conclusions

It has been found that *S. divinorum* and other psychoactive substances induce in some subjects hallucinatory telepathic experiences, which differ in the content and the audibility of the experience. It is proposed that phenomenological differences may be important for understanding the mechanism underlying paranormal experiences.

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APPENDIX A
Reports Containing Description of Hallucinatory Telepathic
Experiences Induced by *S. divinorum*, and Nicknames of Authors

| Subject Number | URL | Subject Nickname |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1 | http://neurogroove.info/trip/sd-juz-was-rozumiem-abli | Abli |
| 2 | http://neurogroove.info/trip/pani-salvia | Wronek |
| 3 | http://neurogroove.info/trip/szkola-zycia-z-szalwia-altwet | altWET |
| 4 | http://neurogroove.info/trip/salvia-8211-co-mi-w-pamieci-utkwilo-retrospekcje | unknown |
| 5 | http://neurogroove.info/trip/atak-malych-szalwiowych-ludzikow-z-szalwii | unknown |
| 6 | http://neurogroove.info/trip/salvia-odkryjmy-lepszy-swiat | unknown |
| 7 | http://neurogroove.info/trip/szauwia-dywanora-czip-riipoot | unknown |
| 8 | http://neurogroove.info/trip/bliskie-spotkanie-z-ekstraktem-10x | unknown |

APPENDIX B
Reports Containing Descriptions of Hallucinatory Telepathic
Experiences Induced by LSD, and Nicknames of Authors

| Subject Number | URL | Subject Nickname |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1 | http://neurogroove.info/trip/moj-pierwszy-papierek | unknown |
| 2 | http://neurogroove.info/trip/pieklo-i-niebo | unknown |
| 3 | http://neurogroove.info/trip/moj-pierwszy-kwas | unknown |
| 4 | http://neurogroove.info/trip/baba-na-rowerze | unknown |
| 5 | http://neurogroove.info/trip/luxus-szczescie-dekadencja | unknown |
| 6 | http://neurogroove.info/trip/zajecia-pozalekcyjne | unknown |
| 7 | http://neurogroove.info/trip/hoffman-12 | unknown |
| 8 | http://neurogroove.info/trip/principia-lysergia | unknown |