



Research article

A clinical trial for the efficacy of Ashwagandha powder in obsessive-compulsive disorder

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ABSTRACT

Obsessive-compulsive disorder (OCD) is a ceaseless mental issue that is causally connected to the dysregulation of the serotonergic framework. OCD is believed to be a standout amongst the most obstinate and impairing nervousness related mental issues in the network, described by steady and pain causing considerations (obsessions), which are egodystonic and apparently intentional conduct (impulses). The present examination has assessed the viability of Ashwagandha choorna (powder). The powder at a dose of 4.5 g, twice a day, after sustenance, nearby nectar was given to them orally for multi-month. In the wake of completing treatment, follow-up was done. Three examinations of before treatment, after treatment and after improvement were done. Criteria of examination relied upon the scoring of Yale-Brown Obsessive Compulsive Scale (Y-BOCS) and Yale-Brown Obsessive Compulsive Symptom Checklist was used to perceive signs. Paired 't' test was used for real appraisal. The results showed that Ashwagandha powder gave 24.66% of help ($p < 0.001$) on Y-BOCS, which was considered as a clinically non-significant.

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INTRODUCTION

Obsessive-Compulsive Disorder (OCD) is a critical anxiety disorder. Obsession is an intermittent and meddling idea, believing, thought, or sensation. An impulse is a cognizant, institutionalized, intermittent idea or conduct, for example, tallying, checking, or maintaining a strategic distance. It can be an incapacitating disorder, in light of the fact that the obsessions can be tedious and can meddle essentially with the individual's ordinary schedule, occupation working, regular social exercises, or associations with loved ones.

OCD influences 1% of the adult population, yet of the individuals who are influenced, half are named serious. OCD is described by obsessive thoughts that reason anxiety and additionally dull practices or impulses that are utilized to attempt and lessen anxiety. OCD is a chronic disorder that is frequently crippling in regular daily existence, making it colossally hard to work every day. SSRIs (particular serotonin reuptake inhibitors) are at the principle line of treatment for OCD, however, 40-60% of patients neglect to react to SSRIs. Of the individuals who do react, just 20-40% demonstrates a noteworthy decline in indications. An ongoing

report has discovered that Ashwagandha (*Withania somnifera*, family Solanaceae) is a protected and powerful extra treatment with SSRIs in the treatment of OCD.

In customary Ayurvedic home-grown pharmaceutical, Ashwagandha is viewed as a restoring and reviving herb. Its roots, which are utilized to improve mental and physical health, have anxiolytic and upper properties and have been utilized as a part of the treatment of anxiety disorders. The phytochemicals thought to assume a part in these helpful impacts incorporate bioactive steroids (withanolides and withanolide glycosides) and alkaloids (withanine and somniferine). Also, a past report in mice found that Ashwagandha may influence serotonergic transmission. The objective of this randomized, twofold visually impaired, fake treatment controlled trial was to test the efficacy of Ashwagandha root extract as a subordinate treatment for OCD.

MATERIALS AND METHODS

Selection of the patients

Patients that were fit for the criteria of the research were taken into account for the research

from the OPD. In which their education, caste or religion was not a consideration.

Inclusion criteria

The patients who were chosen for the research were about 16 to 60 years and they were all chosen on the basis of DSM-IV Diagnostic criteria for OCD.

Rejection criteria

Pregnant ladies, co dismal psychosis and the one who were suffering from diseases like hypertension or diabetes were not included for the study.

Written assent was taken from each persistent willing to take part before the beginning of the examination. Patients were allowed to pull back from the investigation whenever without giving any reason. An itemized proforma was readied fusing Ayurvedic and additionally modern focuses. Add up to 30 patients were enrolled in the present examination and every one of them has finished the course of treatment with no dropouts.

Laboratory investigations

Routine haematological, biochemical and urine examination had been completed by the need. The examinations were completed before the treatment to prohibit natural pathology in presumed cases. On the off chance that any of the anomalies found in examination reports those patients were prohibited from the investigation yet in introduce contemplate no patient was rejected in such a way.

Intervention

Ashwagandha powder was given with the dose of 4.5 gm two times per day (i.e. 9 gm/day) alongside nectar through oral course after the admission of sustenance for 30 days. Follow up period was kept for 30 days after the treatment time frame.

Evaluation

Before treatment, after treatment and after follow up signify three assessments were finished. A standard of assessment relied upon the scoring of the Yale-Brown Obsessive Compulsive Scale (YBOCS). It is the most surely understood measure has been made to assess change in treatment preliminaries. It is made out of 10 Items (Questions) requested into 2 Domains (Five requests in fixation rating scale and five requests in motivation rating scale). Every request is assessed on a five-point (0-4) scale. The request rely upon, time, handicap, repeat, controllability and pain in view of fixations and also impulses. Indicate score extent of this scale is 0-40. Yale-Brown Obsessive Compulsive Symptom Checklist (Y-BOCSCC) was moreover

used as a piece of the present examination to recognize the various types of fixation and motivation shown in the patients. This motivation joins more than 60 symptoms dealt with according to 15 confine classes of fixations and impulses. This scale completely recognizes each possible kind of obsessions and impulses.

Statistical analysis

Statistical analysis was finished by utilizing "Understudy's Paired t-test". The data assembled based on perceptions was subjected to the measurable investigation as far as mean distinction, standard deviation (SD), standard error (SE), Paired 't' test, was done. The measurably huge level was kept at $p < 0.05$.

Observations

In indicate contemplate, 52.86% were female, 40.78% of subjects have a place with 36-45 years age gathering, 62.97% were Muslims, 92.57% of subjects have a place with professional class, and 85.20% of subjects had a negative family history for obsessive-compulsive disorder. Most of the patients (44.45%) were having a tense tendency. A most outrageous number of the patients (62.97%) have genuine to the crazy extent of OCD. Most extraordinary number of the patients i.e. contamination obsessions, 59.36% aggressive obsessions, 48.16% symmetrical obsessions, and 44.45% religious obsessions; among impulses, 92.57% indicated washing/ cleaning compulsions, 81.49% checking compulsions, 48.16% counting compulsions and 44.45% ordering/arranging compulsions (Fig. 1).

RESULTS

Most extraordinary i.e. 16.26% ($P < 0.01$) of alleviation found in time spent on obsessions took after by insurance from obsessions 14.15% or help ($P < 0.01$) after the treatment period. After a follow-up period, most outrageous alleviation found in time spent on fixation i.e. 27.77% ($P < 0.001$) trailed by control over fixations, 24.24% ($P < 0.001$). General alleviation on signifies score of fixations after treatment was 11.91% ($P < 0.01$) and after follow up the help was also upgraded to 23.23% ($P < 0.001$).

Most extreme i.e. 18.24% ($P < 0.01$) of relief found in obstruction to compulsions took after time spent on compulsions 14.15% or relief ($P < 0.01$) after treatment period (Table 1). After a follow-up period most extreme relief found in protection from compulsions i.e. 31.24% ($P < 0.001$) trailed by control over compulsions, 30.38% ($P < 0.001$). In things like time spent on compulsions and impedance from compulsions, relief was seen as 28.75% ($P < 0.01$) and 26.15% ($P < 0.001$) individually.

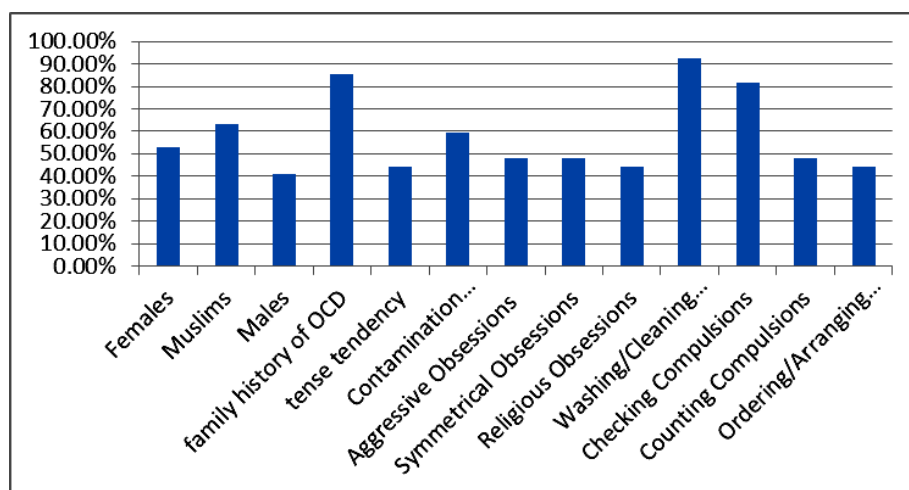


Fig. 1. Percentage of the respondents

Table 1. Effect of therapy after treatment

S.No.	Before treatment	After treatment	Mean diff.	% of relief	Standard deviation	Standard error	't' Value	p Value
Obsession Rating Scale								
1	1.51	3.12	0.41	16.26	0.63	0.13	4.45	<0.01
2	2.46	3.23	0.30	11.91	0.62	0.11	4.46	<0.05
3	1.43	3.32	0.12	4.5	0.42	0.09	6.32	>0.05
4	1.82	3.42	0.42	16.61	0.75	0.15	3.13	<0.01
5	1.81	3.58	0.31	10.39	0.79	0.14	3.66	>0.05
Compulsion rating Scale								
6	1.32	3.00	0.34	14.15	0.63	0.13	2.78	<0.01
7	1.42	3.12	0.31	12.46	0.60	0.13	2.54	<0.05
8	2.42	2.27	0.16	6.21	0.47	0.08	1.68	>0.05
9	2.86	2.34	0.53	18.24	0.76	0.15	3.57	<0.01
10	2.94	2.57	0.38	12.62	0.48	0.10	3.92	>0.005

General relief on adding up to score of impulse after treatment was 12.62% ($p < 0.001$) and after follow-up, the relief was additionally enhanced to 27.77% ($P < 0.001$). The overall effect of therapy (Table 2) in view of Y-BOCS scoring, after the treatment period, none of them got finish fix, checked and moderate improvement and 11.11% demonstrated mild improvement while the greatest

number of the patients i.e. 88.71% were under unchanged or no relief class. After the follow-up period, some improvements were observed i.e. 4.9% indicated checked and moderate improvements, though 33% got mild improvement and 61.5% were as yet unchanged or with no improvement. An overall summary of the results of therapy is given in Table 3.

Table 2. Effect of therapy after follow-up

S.No.	Before treatment	After treatment	Mean diff.	% of relief	Standard deviation	Standard error	't' Value	p Value
Obsession Rating Scale								
1	3.52	1.82	0.71	27.77	0.81	0.17	4.45	<0.001
2	3.52	1.97	0.57	22.22	0.81	0.16	3.17	<0.01
3	3.44	2.12	0.34	13.52	0.67	0.14	2.56	<0.05
4	3.81	2.18	0.64	23.23	0.87	0.18	3.72	<0.01
5	3.89	2.18	0.71	24.24	0.77	0.16	4.73	<0.001
Compulsion rating Scale								
6	3.33	1.68	0.68	28.75	1.03	0.21	3.35	<0.01
7	3.41	1.77	0.62	26.15	0.78	0.16	4.15	<0.001
8	3.41	1.97	0.43	18.26	0.81	0.16	2.88	<0.01
9	3.85	1.97	0.88	31.24	1.01	0.22	4.27	<0.001
10	3.93	2.03	0.88	30.38	0.94	0.19	4.96	<0.001

Table 3. The overall results of therapy

Examination	Treated	Visual improvement	Average improvement	Little improvement	Not changed
Post-treatment	0%	0%	0%	11.30%	88.70%
Follow-up done post treatment	0%	4.8%	4.8%	32%	60.4%

DISCUSSION

Earlier research confirmed the part of *W. somnifera* root extract as a subordinate to standard treatment for OCD. In a clinical report including around 30 patients with an affirmed diagnosis of OCD, the root extract was observed to be protected and powerful at a dose of 120 mg/kg (Jahanbakhsh et al., 2016). Kumar and Patnaik (2016) revealed the *in silico* assessment of the neuroprotective efficacy of *W. somnifera* phytochemicals by hindrance of N-methyl D-aspartate receptor interceded excitotoxicity through allosteric restraint of the GluN2B containing NMDARs. Results proposed that anaferrine, β -sitosterol, withaferin A, withanolide A, withanolide B and withanolide D hinder GluN2B containing NMDARs through allosteric mode like the outstanding specific adversary Ifenprodil. These phytochemicals have potential as a basically helpful oral medication to counter NMDARs intervened excitotoxicity and to treat multi-neurodegenerative maladies.

The advantageous impacts of *W. somnifera* root fluid and methanolic extracts in the treatment of obsessive-compulsive disorder as was apparent through the marble covering a model in mice has been investigated (Kaurav et al., 2012). The root extract at 50 mg/kg lessened the marble covering conduct with no effect on engine action and the outcomes were equivalent to standard fluoxetine, ritanserin and parachlorophenylalanine. Results proposed critical potential to treat OCD.

Uddin et al. (2012) have reviewed the morphological, infinitesimal, phytochemical and pharmacological properties of this plant. The root extract exhibited mitigating, antitoxin, invulnerable modulatory, against the tumour, hostile to pressure, musculotropic, hostile to hyperglycemic, macrophage enacting, hepatoprotective, morphine resistance inhibitory and neuropharmacological activities. Singh et al. (2010) checked on the natural properties of *W. somnifera*. Their audit clarifies its significant dynamic constituents and their helpful exercises. Withanolides, the key constituents of the plant were observed to be broadly circulated among the individuals from the Solanaceae family. In addition, withaferin, a functioning constituent found in the leaves, was known to have anticancer impacts. The herb has been observed to be valuable in the treatment of disorders of the sensory system.

The earlier research also investigated the major and additional elements introduced in the

leaves, shoots, seeds and roots of the plant. Nine trace elements Fe, Cu, Ni, Mn, Zn, Cr, Co and Cd were found in these parts. These micronutrients are valuable for the general health of an individual and their lack can prompt a few disorders. *W. somnifera* was observed to be wealthy in Fe, Cu, Ni, Mn and Zn contents (Shirin et al., 2010). Kapoor et al. (2009) checked on therapeutic plants and herbs against maturing potential. They found the value of Ashwagandha in age-related disorders. *W. somnifera*, wealthy in flavonoids and withanolides, was known to have hostile to an oxidant, against stretch, personality boosting and reviving properties.

Various constituents including β -sitosterol, stigmasterol and their glucosides have been isolated from the plant (Misra et al., 2008)). This study suggested the separation of α and β glucose, stigmasterol, its glucoside and viscous lactone B from the roots among the known concoction constituents. The withasteroid skeletons of the two new mixes were found to have uncommon and unprecedented practical gatherings. One of them had 16 β - acetoxy-17(20)-ene gathering while the other had 6 α - hydroxy-5,7 α -epoxy gathering.

Patel et al. (2013) assessed the different pharmacological properties and investigative profile of withaferin, an imperative phyto-constituent of *W. somnifera*. It has a place with the gathering of withanolides (normally happening C-28 steroidal lactones, triterpenoids in the source). It was known to have a great pharmacological profile and its part has been embroiled in the treatment of a few metabolic disorders. It has helpful impacts as an immunomodulatory, neuro-defensive, cardio-defensive, and hostile to pressure and against tumour specialist. Adams et al. (2007) surveyed the restorative plants helpful in age-related cerebrum disorders. They examined the gainful part of *W. somnifera* roots as a tonic for restoration and in the treatment of feeble dementia. A few investigations propose the discernment upgrading impacts of this plant. Dendritic outgrowths were delivered in ordinary cortical neurons of disengaged rodent cells by withanoside IV or VI and axonal outgrowths were created in by withanolide A treatment. Reproduction of neurotransmitters or psychotic recovery in amyloid- β initiated harmed neurons was seen by treatment with withanolide A, withanoside IV and VI. Reproduction of pre and postsynaptic locales in neurons was additionally encouraged by these constituents. The extract of *W. somnifera* rich in withaferin and sitoinodosides VII- X upgraded learning and memory in youthful

and old rats. It enlarged AChE action in parallel septum and globus pallidus while it diminished AChE action in a vertical diagonal band.

CONCLUSION

OCD is accepted to be a champion among the most stubborn and disabling mental issue in the system. It takes after an endless, fluctuating course and only every so often does the turmoil resolve promptly. Despite various medications are open countless patients i.e. 40-60% disregard to respond to a basic tasteful treatment with various pharmacological experts. By pondering these factors for the present examination, Ashwagandha powder has been picked and it contains fixings which are having diverse psychopharmacological exercises and showed significant in the treatment of various masochist and furthermore twisted conditions. Ashwagandha is the essential component of Ashwagandha is as convincing as Tranquilizers. Nervousness mitigating effects of Ashwagandha resemble those achieved by the counter uneasiness calm lorazepam. Upper effects resembled those of the energizer cure imipramine. Ashwagandha makes GABA-like activity, which may speak to the herb's hostile to anxiety. Ashwagandha (*W. somnifera*) concentrate might be gainful as a protected and compelling assistant to SSRIs in the treatment of obsessive-compulsive disorder.

CONFLICTS OF INTEREST

The author(s) declared no conflicts of interest.

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