



## Effectiveness of Medicinal Plants Extract Combination on Sexual and Psychological Performance in Patients with Schizophrenia

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### Abstract

*One of the complications of schizophrenia and consumption of antipsychotic medicines is a disorder in sexual performance which may lead to a negative effect on the life quality of patients. This study aims to examine the effect of all medicinal plants extract on improvement of the patients' sexual performance. 40 patients with schizophrenia were selected using convenience sampling and were considered into two groups each consisting of 20 patients. In the first step, the patients were provided with SFQ and BPRS questionnaires as pretest. Then, each of them was given three pills per day containing Saffron, Caltrop, Cinnamon and Ginger for a period of one month. The results show that the difference of pretest-posttest grades on sexual performance Green House-Geisser statistical test- wasn't significant ( $P < 0.05$ ) and the mentioned medicinal plants extract have no effect on sexual desire, sexual arousal and orgasm, yet they have a positive effect on their psychological performance and the differences of averages are statistically significant ( $P < 0.05$ ). The extract of saffron, caltrop, ginger and cinnamon has no effect on the sexual performance of patients with schizophrenia but this set has been recognized on schizophrenic patients' mental performance improvement.*

**Keywords:** Schizophrenia, sexual and psychological performance, saffron, ginger, cinnamon, caltrop.

### Introduction

Sexual problems are prevalent among patients with schizophrenia and causes poor Quality Of Life on them<sup>1</sup>. Any type of mental disorders, as psychological factors, can be significantly effective on decreased sexual desire, for instance schizophrenia, psychosis, depression, etc<sup>2</sup>. Antipsychotic drugs generally are known as accompanied by sexual dysfunction. It is estimated that sexual disorders are affected on 30-80% of patients with schizophrenia and a major reason is their low quality of life<sup>3</sup>. It is possible that men and women using antipsychotics receive decreased sexual desire or lack of reaching orgasm<sup>4</sup>. If patients with schizophrenia realize that they are not able to have normal sexual activity due to prescribed treatments, they may decide to stop receiving the treatments<sup>3</sup>. Currently, researchers prefer to find natural substances derived from plants for sexual dysfunctions which are useful and also have fewer side effects<sup>2</sup>.

In a study to investigate anti-depressant effects of saffron, capsules containing 10 mg saffron were given to experimental groups three times daily with 100 mg Imipramine drug as unaware of the interactive clinical trial for six weeks. Comparison of findings of this study showed that Imipramine and saffron have similar impact on outpatients with mild to moderately depression<sup>5</sup>.

In a study done by Shamsa et al with a sample number of 20 men with erection dysfunction about saffron's impact on erection (using IIEF-15 tools and NPT nocturnal erections test), the results were positive and daily using of one pill containing 200 mg of saffron for 10 days caused significant improvement on erection performance of men<sup>6</sup>. Another study was conducted with the aim to evaluate impact of saffron stigma on mild to moderate depression. In a placebo-controlled clinical trial where both parties were unaware, forty adult outpatients with depression diagnosis were selected and experimental group received 30 mg saffron capsule for 6 weeks twice a day and second group received placebo capsule. The results showed that saffron has better impacts relative to the placebo and probably it can have therapeutic effects on mild to moderate depressions, although such studies results should be done with greater sample size<sup>7</sup>.

Safarinejad et al gave daily 30 mg ethanolic extract of saffron to 346 men with erection dysfunction for 12 weeks and after a stop of 12 weeks, subjects received Sildenafil (Viagra) for 12 weeks that after comparing results from treatment with the drug, a decrease was seen in terms of intercourse and sexual satisfaction and orgasm in the period using saffron in comparison with the period taking Sildenafil and even relative to the period before treatment with saffron<sup>8</sup>.

However, Melnyk has attributed such differences in results of two above researches to the difference of research design type. For instance, in 2009 study in comparison with 2010 one, high dose of saffron was used (i.e. 200 mg against 30 mg daily), although treatment period was shorter<sup>96</sup>. Impact of Cinnamomumzeylanicum as a sexual stimulus has been addressed in classification book of medicinal plants<sup>10</sup>. Also, Tribulusterrestris has been known as a sexual stimulus as well<sup>9</sup>. This is widely believed that Tribulusterrestris effects strongly on increased androgen metabolism and significantly on testosterone levels or testosterone precursors.

In another study, lust-inducing properties of Tribulusterrestris were tested on 21 health men having 20 to 36 years old divided into two groups including experimental group and placebo group. Results showed that after daily receiving 10 or 20 mg of Tribulusterrestris on body weight (kg) for 4 weeks, no significant increase was seen in androstenedione and testosterone level or luteinizing hormone<sup>11</sup>. In another research, effectiveness of these plants (i.e. tribulusterrestris, saffron, Cinnamomumzeylanicum, and ginger) was investigated where indicated that a permanent erection is formed in more than 80% of studied persons. Also, it was revealed that extract of such plants increases sperm number. It is worth noting that saponin isolated from Tribulus Terrestris increases FSH production through pituitary which itself increases sperm number. Gametogenesis function on testis is controlled intentionally by pituitary FSH. In someone, sexual disorders are accompanied with anxiety resulting from inability to show sexual performance, the extract of these plants is able to eliminate such an anxiety and results in comfort and self-confidence<sup>12</sup>.

Given that previous studies on the effects of these medicinal plants on sexual functioning and mental performance from which some instances were presented here, effectiveness of such plants and results obtained through different studies are controversial and necessity of conducting more studies in this regard is clearly clear.

Furthermore, the creation of sexual dysfunctions following the use of antipsychotic drugs may cause to reduce the individual willingness to track treatment. According to above mentioned reasons and since few researches have been conducted about the effects of herbal extracts on sexual function as well as sexual disorders in patients with schizophrenia and their need to rehabilitation, it seems that results of present study can be helpful in order to correctly understand and realize the problems and make more appropriate treatment decisions for these patients. So, this research tries to examine total impact of medicinal plants' extract (including TribulusTerrestris, saffron, cinnamon and ginger) on schizophrenic men under the treatment with antipsychotic drugs (e.g. sexual desire, sexual arousal and orgasm).

Also, present study aims to specify effectiveness of such plants' extract on mental performance in men with schizophrenia.

## Material and Methods

Present research is an experimental-type study (pretest- posttest with control group). The statistical universe includes patients with schizophrenia (in stable stage) referring to Kamrani outpatient treatment center within 2010-2011. Sample size contains 40 persons divided into two groups including 20 people assigned to experimental group and remaining to control group. Similar previous studies were used to specify sample size. In this research, convenience sampling method was used. Inclusion criteria for study: Age of subjects shall be 20-55; they should be married; having education at least to read and reply questions of inventory. Exclusion criteria for study: With physical illness (diabetes, spinal injuries, heart diseases, infectious diseases and urinary tracts) which affects on sexual functioning; Using drugs (excluding antipsychotic drugs)with conjoined mental disorders in addition to schizophrenia disorder (conjoined mental disorders are diagnosed by psychiatrist).

Measurement instruments: data is acquired through three questionnaires as follows: i. *Demographic information questionnaire* which addresses personal characteristics, physical and mental illnesses, and diseases influential on sexual functioning. ii. *SFQ (Sexual Functioning Questionnaire)* which is an objective questionnaire to measure sexual functioning disorders. This test examines the sexual functioning in different areas such as sexual desire, erection, ejaculation and orgasm and is based on DSM-IV-TR criteria. Smith et al. obtained its validity of 90% in their research using SFQ. iii. *BPRS (Brief Psychiatric Rating Scale)* which is one of the major tools to examine psychiatric symptoms for which BPRS test is widely used in drug impact evaluations. Based on Kaplan andSadouk this scale is one the most common measurement instruments of psychopathology<sup>13 14</sup>. Cronbach's alpha coefficient which was calculated by research team on a sample of 33 psychotic patients was 0.080 (%.80 =a) and graders' agreed coefficient on another sample of 38 patients with schizophrenia was 0.072.

Ethical considerations in present study are awareness of research objective, voluntary participation in the test and confidentiality of the subject's characteristics and information. For this purpose, a written agreement to participate in the research was obtained from subjects and they could cancel to continue cooperation on the study whenever they wanted. Statistical analysis method of data: given the research plan and used variables, the most suitable analysis and interpretation method of data is descriptive statistical methods including frequency distribution, frequency percent, mean, standard deviation; Two Way Mixed ANOVA test was used to analyze hypotheses, Green-House Giesser test was hired to compare effects inside the group and SPSS tool was employed to analyze data.

## Results and Discussion

According to table 1, the mean age of experimental group and control group are 46.20 and 43.85, respectively.

Table 2 shows the difference of pretest-posttest grades on mental performance- using GreenHouse-Geisser statistical test- was significant (P<0.05) both inside the groups (with/without drug impact) and between experimental and control groups with significance level of 0.05 and degree of freedom of 1.

According to table 3, the difference of pretest-posttest grades on sexual desire - using GreenHouse-Geisser statistical test- wasn't significant (P<0.05) both inside the groups (with/without drug impact) and between experimental and control groups with significance level of 0.05 and degree of freedom of 1.

Also according to table 4, the difference of pretest-posttest grades on sexual arousal - using GreenHouse-Geisser statistical test- wasn't significant (P<0.05) both inside the groups (with/without drug impact) and between experimental and control groups with significance level of 0.05 and degree of freedom of 1.

Finally table 5 shows the difference of pretest-posttest grades on orgasm - using GreenHouse-Geisser statistical test- wasn't significant (P<0.05) both inside the groups (with/without drug impact) and between experimental and control groups with significance level of 0.05 and degree of freedom of 1.

**Table-1**  
**Age mean of experimental group and control group**

Max	Min	Variance	Standard Deviation	Age mean	N	Group
55	34	56.48	7.51	46.20	20	Experimental
55	25	80.97	8.99	43.85	20	Control

**Table-2**  
**The difference of pretest-posttest grades on mental performance (BPRS)**

Sig	F	Mean of Square	Degree of Freedom	Sum of Square	Test	
0.000	16.53	1175.32	1	1175.32	Green House	Within-group (without drug impact)
0.000	10.13	720.602	2	1441.2	Green House	Within-group (with drug impact)
0.01	5.18	1049.51	2	2099.03	TWO Way Mixde ANOVA	Between-group

**Table-3**  
**The difference of pretest-posttest grades on sexual desire**

Sig	F	Mean of Square	Degree of Freedom	Sum of Square	Test	
0.731	0.120	0.450	1	0.450	Gree House-Geisser	Within-group (without drug impact)
0.361	0.854	3.20	1	3.20	Gree House-Geisser	Within-group (with drug impact)
0.957	0.300	0.200	1	0.200	TWO Way Mixde ANOVA	Between-group

**Table-4**  
**The difference of pretest-posttest grades on sexual arousal**

Sig	F	Mean of Square	Degree of Freedom	Sum of Square	Test	
0.297	1.119	13.61	1	13.61	Green House	Within-group (without drug impact)
0.385	0.864	10.51	1	10.51	Green House	Within-group (with drug impact)
0.558	0.349	7.81	1	7.81	TWO Way Mixde ANOVA	Between-group

**Table-5**  
**The difference of pretest-posttest grades on orgasm**

Sig	F	Mean of Square	Degree of Freedom	Sum of Square	Test	
0.947	0.004	0.001	1	0.001	Green House	Within-group ( without drug impact)
0.976	0.024	0.007	2	0.014	Green House	Within-group (with drug impact)
0.872	0.137	1.11	2	2.22	TWO Way Mixde ANOVA	Between-group

In present study, we try to investigate effect of such plants on schizophrenic patients' sexual functioning. Based on conducted researches, schizophrenic patients suffer sexual dysfunction because of both the disease and using antipsychotic drugs. This research results show that mentioned plants extract has no impact to improve sexual arousal and erection. In a study conducted by Shamsa about saffron impact on dysfunction, the results were positive where saffron could significantly cause to improve erection dysfunction in the subjects. Also, Goodman indicated that using plants set is effective on erection while results of present research were not in line with those of Shamsa and Goodman. Studies of Neychev about Tribulus Terrestris and that of Safarinejad about saffron showed that both substances have no effect on the subjects' sexual functioning, and even in Safarinejad's study, subjects' posttest grades were lower than their pretest grades. In this regard, our results are in line with those of Neychev and Safarinejad. From previous studies, conflicting results were achieved about the effect of these plants on sexual functioning whose reason can be the difference on measurement tools or methodology and amount and rate of used medicinal plant and perhaps based on Goodman the effects of such plants are observable on mild to moderate dysfunction and if higher level of dysfunction, the effects will not be so effective. Since schizophrenic patients suffer from both psychological factors (schizophrenia disease) and physiological ones (using antipsychotic drugs), thereby they experience higher level of sexual dysfunction. Hence, such drugs do not have the power to improve sexual dysfunction on the patients with schizophrenia; and probably, herbal drug dose used was lower than what can be effective on the dysfunction improvement. For instance, Shamsa used pills containing 200 mg saffron for 10 days, while Safarinejad hired 30 mg pills of saffron for 3 months whose results were varied. On the other hand, the important finding of present research is the effect of these plants set extract on schizophrenic patients' performance. This set has been recognized on schizophrenic patients' mental performance improvement and in some studies and previous resources, antidepressant, anti-anxiety and sedative effects of such plants (i.e. Saffron, Cinnamomumzeylanicum) have been addressed and even Cinnamomumzeylanicum is known as plant volume<sup>15,16</sup>. In studies of Shamsa and Akhoundzadeh antidepressant properties of saffron are mentioned so that Akhoundzadeh has introduced saffron as with Imipramine in terms of antidepressant properties

(of course, mild to moderate depression). Also, Noorbala has obtained positive results regarding saffron impact on depression. Goodman also suggests that extract of these medicinal plants causes comfort and self-confidence in subjects. Therefore, it can be concluded that in present study, although combination of these plants has no positive results on sexual functioning, they have positive effects in terms of mental performance and our results are in line with findings of Akhoundzadeh and Goodman. Gaining such a result can be very important to improve status of schizophrenic patients since any step in the way of understanding this disease is a major step towards achieving the desired outcome.

### Conclusion

Solving disorders in sexual functioning is necessary on individual health improvement and quality of marital relationships enhancement and is also an important measure to prevent family disputes and the corresponding consequences. Impact of these plants on sexual functioning has gained conflicting results in most of researches and need to more studies in this field is sensible significantly. Future studies will need more controlled and more precise experiments about impacts of these plants in both males and females.

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