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Effect of HeezOn® Capsules on Male Hormone as Well as Sexual Function: An Open Label Pilot Study

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Abstract: ***Sexual dysfunction is characterized by abnormalities of sexual psychology, affecting sexual behavior. The study aimed to assess the safety and efficacy of HeezOn® capsules in enhancing sexual function among males experiencing sexual dysfunctions such as mild erectile dysfunction (ED), premature ejaculation (PE), or decreased libido. Nine males with these issues were enrolled and consented to the study, consumed two capsules of HeezOn® twice daily for 30 days. Erectile function was assessed by International Index of Erectile Function (IIEF), while ejaculation was assessed by Index of Premature Ejaculation (IPE) and Intravaginal ejaculation latency time (IELT). Treatment satisfaction was measured using Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS), and testosterone levels were also monitored. After 30 days, HeezOn® capsules administration led to statistically significant improvements in various parameters, including the total IIEF score, IPE score, IELT and EDITS score (both Participant and Partner versions). Although there was a non-significant increase in serum testosterone levels. HeezOn® was well-tolerated by about two-thirds of the participants, with mild side effects reported by one-third of the group. Notably, no serious adverse events were reported, establishing the safety of HeezOn® capsules. The study concluded that oral administration of HeezOn® capsules effectively improved sexual function and overall quality of life in male participants with sexual dysfunctions.***

Keywords: HeezOn®, Erectile dysfunction, Sexual dysfunction, IIEF

1. Introduction

Sexual dysfunction (SD) is characterized by abnormalities or the absence of sexual psychology and physiological reactions, affecting sexual behavior and sensation. Male sexual dysfunction (MSD) encompasses the entire process of sexual activity in men, involving sexual arousal, penile erection, penetration, ejaculation, and any hindrance in these aspects is considered a sexual dysfunction [1]. The three major forms of male sexual dysfunction are erectile dysfunction, ejaculatory dysfunction and decreased libido. Erectile dysfunction (ED), formerly known as impotence, is the inability to achieve or maintain a rigid penile erection suitable for satisfactory sexual intercourse [2]. This condition is prevalent in men aged 40 and older, especially in the presence of co-morbidities like diabetes, hypogonadism, and cardiovascular disease [3]. The global prevalence of ED is expected to rise to 322 million men by 2025, marking an increase from 152 million in 1995 [4]. Premature ejaculation is defined as an inability to exert voluntary control over the ejaculatory reflex or as the condition where a man reaches orgasm and ejaculates before he desires to do so [5]. About 30% of adult men aged 18 to 59 report issues with premature ejaculation. Notably, 30% of men experiencing premature ejaculation also report concurrent erectile dysfunction, where early ejaculation occurs without achieving a full erection [6]. Decreased libido involves diminished or absent feelings of sexual interest or desire, a lack of sexual thoughts or fantasies, and unresponsiveness to sexual stimuli [7]. The prevalence rate of sexual interest disorders is reported to be 16% in men aged 18 to 59 years [8]. Overall, these sexual dysfunctions collectively impact various aspects of male sexual health.

Male sexual function relies on the coordinated interaction of multiple factors, including neural activity, vascular events, intra-cavernosal nitric oxide synthase (NOS) enzyme, and androgens primarily testosterone. The NOS along with testosterone plays a vital role in fueling the sex drive and performance [1]. When there is a deviation from the norm in male sexual function, it often indicates a malfunction or disruption in one or more of these contributing factors. Additionally, disruptive influences, whether psychological, emotional, or pharmacologic in nature, either individually or in combination, have the potential to adversely affect a man's sexual function. Recognizing and understanding these complex interactions is crucial for assessing and addressing issues related to male sexual health.

Presently, numerous effective therapies are available for managing SD. First-line therapies encompass oral pharmacotherapy and psychosexual therapy. Oral medications such as sildenafil citrate (Viagra), as well as other phosphodiesterase type 5 (PDE-5) inhibitor drugs like vardenafil, tadalafil, and alprostadil, play a significant role in treating SD, particularly ED. Psychosexual therapy is another first-line approach aimed at addressing psychological and emotional factors contributing to sexual issues. Moving to second-line therapies, options include intraurethral and intracavernosal administration of vasoactive drugs, vacuum devices, and surgery (penile prostheses). These interventions are considered when first-line treatments prove ineffective or are unsuitable. However, current therapies can have side effects. For instance, one study reported a 17% discontinuation rate for sildenafil due to loss of efficacy after two years. Another study found that high concentrations of sildenafil increase PDE5 expression in cavernosal smooth

muscle cell cultures, which can lead to tachyphylaxis [9]. Because of these concerns, there is a growing interest in herbal therapy for SD [10]. Traditional herbal remedies are gaining acceptance among individuals as they provide an alternative that is perceived as natural. This interest is notable, with approximately 50% of respondents in a study stating that they chose not to use PDE-5 inhibitors due to perceived risks and a preference for natural therapies. Herbal therapies are becoming increasingly popular as they offer an accessible alternative for individuals seeking a holistic approach to address their sexual health concerns [11].

HeezOn® is a patented aphrodisiac formula containing potent herbs from Ayurvedic literature comprising of *Tribulus terrestris*, *Withnia somnifera*, *Astercantha longifolia*, *Mucuna pruciens*, *Curculigo orchiodies*, *Aspargus adscendens*, and *Asphaltum*. *Tribulus terrestris* (TT) has a long history of use in Indian and Chinese traditional medicine to enhance libido and sexual performance. The primary furostanol saponins in TT are protodioscin and prototribestin, with protodioscin potentially improving erection function by converting into dehydroepiandrosterone (DHEA) [12]. *Withania somnifera*, commonly referred to as Indian ginseng or *Ashwagandha*, has gained recognition in traditional medicine as both an aphrodisiac and geriatric tonic. Preclinical studies have revealed its ability to stimulate testicular development and spermatogenesis in immature Wistar rats by directly influencing the somniferous tubules [13]. Plants such as *Mucuna pruriens*, *Curculigo orchioides*, *Asteracantha longifolia* have demonstrated to improve sexual manifestation [14]. Additionally, *Asparagus adscendens* [15] and *Asphaltum* [16] has also been ascribed as a potent aphrodisiac property.

The aim of this study was to evaluate the safety and efficacy of the polyherbal investigational product in participants with male sexual dysfunction and also to evaluate the impact of the treatment on the participants and on the couple—who present with sexual dysfunction.

2. Material and methods

2.1 Ethical considerations

This pilot study was conceived to establish the design for the main randomized control study of HeezOn® capsule on the sexual function of males with sexual dysfunction. This study was conducted at a Samarpan Ayurvedic Clinic, Kandivali (West), Mumbai - 67, Maharashtra, India. The study complied with the Declaration of Helsinki, ICH-GCP, and Ethical Guidelines for Biomedical Research on Human Participants, 2006. The investigators explained the objectives, procedures, risks, and benefits involved in the study to all the participants. Participants providing written informed consent were recruited for the study.

2.2 Participants

This study was conducted on nine sexually active males aged 25 – 45 year recruited from the outpatient department (OPD). The participants were in monogamous, heterosexual relationship and presented with erectile dysfunction [ED], premature ejaculation [PE] or decreased libido. Participants with penis deformity (severe penile fibrosis or Peyronie's disease, phimosis), sexually transmitted diseases (STD)/ human immunodeficiency virus (HIV), thyroid stimulating hormone (TSH) lower than 30% of lower limit of normal, serum testosterone (<300 ng/dl) were excluded from the study. Participants using any medication or supplements for sexual dysfunction were excluded from the study. Other exclusion criteria included a history of psychiatric disorders, cardiovascular diseases, diabetes, spinal cord injury/radical prostatectomy/radical pelvic surgery and drug abuse (alcohol, marijuana, cocaine, or opiates).

2.3 Intervention

All participants received HeezOn® capsules, administered at a dose of two capsules orally twice daily, with a glass of warm milk, for a duration of 30 days.

2.4 Study conduct

Males complaining of sexual dysfunctions in form of mild erectile dysfunction (ED), premature ejaculation (PE) or decreased libido, were consented and screened for the inclusion-exclusion criteria of study. Nine participants when found eligible were enrolled for the study. Based on their reported symptoms, the participants were cohorted into one of three groups: ED, PE, and decreased libido. At baseline, laboratory investigations which included thyroid-stimulating hormone (TSH), serum prolactin, and fasting blood sugar (FBS) levels were conducted to exclude individuals with hormonal disorders and diabetes. Additionally, comprehensive safety profile which included complete blood count (CBC), erythrocyte sedimentation rate (ESR), serum creatinine, and serum glutamic pyruvic transaminase (SGPT) along with vital parameters [Systolic Blood Pressure (SBP), and Diastolic Blood Pressure (DBP), respiratory rate (RR) and pulse rate (PR)] were conducted done at baseline and end of the study. Participants started consuming two capsules of Investigational Products (IP), HeezOn®, twice daily for 30 days. Erectile function was assessed by International Index of Erectile Function (IIEF) whereas the ejaculation was assessed by the Index of Premature Ejaculation (IPE). The ejaculation latency was evaluated by Intravaginal ejaculation latency time (IELT). Participants as well as their partners reported the treatment satisfaction using Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS). Additionally, the amount of male hormone, testosterone was also assessed during the study. Adverse events and serious adverse events were recorded throughout the study period.

2.5 Outcome Measures

2.5.1. Efficacy Outcome

a) International Index of Erectile Function (IIEF)

The 15-question IIEF Questionnaire is a validated, multidimensional, self-administered investigation that has been found useful in the clinical assessment of erectile dysfunction and treatment outcomes in clinical trials. A score of 0-5 is awarded to each of the 15 questions that examine the 4 main domains of male sexual function: erectile function, orgasmic function, sexual desire and intercourse satisfaction. The IIEF the predominant patient-reported outcomes instrument for evaluating male sexual function [17]. Participants completed the IIEF questionnaire at baseline, Day

15 and Day 30, to evaluate the changes in male sexual function over the course of the study.

b) Index of Premature Ejaculation (IPE)

The IPE was developed by Althof et al [18]. It is a 10 item self-administered questionnaire designed to evaluate sexual satisfaction, control and distress in men with premature ejaculation. It was developed using four stages: item pool development, initial psychometric analyses, patient interviews, and final psychometric analyses. The IPE contains three factor analytically derived domains: control, sexual satisfaction and distress. All three domains have shown adequate internal consistency and reliability, as well as known groups validity in comparing men with and without PE. Convergent validity against IELT was also strong for all three domains [control (r=0.75); sexual satisfaction (r=0.60) and distress (r=0.68)] [19]. Participants completed the IPE questionnaire at baseline and end of study.

c) Intravaginal Ejaculatory Latency Time (IELT)

To measure ejaculation time, the concept of IELT was introduced by Waldinger et al. in 1994 [20]. IELT is defined as the duration between the initiation of penile intromission and the onset of intravaginal ejaculation. To evaluate improvements in ejaculatory time, participants were queried about the approximate duration taken for ejaculation during sexual intercourse, referred to as IELT, at each visit. This measurement allows for a systematic assessment of changes in ejaculatory performance over the course of treatment.

d) Serum testosterone level

In humans, the effects of testosterone on the vasculature were first reported in 1939 by Edwards and colleagues [21]. Human studies designed to examine a possible direct vasodilator effect of testosterone on penile arterial circulation are lacking, but some indirect evidence suggests that the levels inherent levels of testosterone can be directly correlated to the erectile function. The serum testosterone levels were evaluated using ELISA method at baseline and end of the study.

e) Participant & Partner versions of Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS)

The EDITS questionnaire was developed and validated to assess treatment satisfaction in individuals with erectile dysfunction (ED) stemming from various causes [22]. EDITS has been employed to measure satisfaction with various ED treatments, including sildenafil, apomorphine, intracavernosal injections, and penile prosthesis [23], [24]. Notably, EDITS stands out for its comprehensive evaluation of different aspects of treatment satisfaction, which is considered crucial for understanding treatment adherence and continuity [25]. In the current study, two versions of the EDITS questionnaire were utilized, both demonstrating psychometrically sound measures of satisfaction with treatments for erectile dysfunction. One version, known as Participant EDITS, was designed to evaluate participant's treatment satisfaction, while the other, Partner EDITS, focused on assessing partners' treatment satisfaction. Partner satisfaction, although less studied compared to participant satisfaction, is deemed relevant in comprehending the continuity of treatment for sexual dysfunction, given the dyadic nature of the condition [26]. The Participant EDITS version comprises 11 items, each scored on a scale from 1 (indicating low satisfaction) to 5 (indicating high satisfaction). Higher scores on the scale signify greater satisfaction with the treatment from the participant's perspective. This dual assessment approach, considering both participant and partner satisfaction, provides a more holistic understanding of the impact of ED treatments on the individuals involved and their relationships. Participants filled the questionnaire at Day 15 and Day 30.

f) Efficacy Assessment by Investigator

The investigator conducted an overall assessment of the product's efficacy for each participant, taking into account various parameters. The assessment was graded on a scale ranging from 1 to 4, with the following categories:

- Excellent improvement
- Good
- Average
- Poor/No improvement

2.5.2. Safety and Tolerability outcome

Safety and tolerability outcome were evaluated at baseline and Day 30.

2.6 Statistical analysis

For the analysis of efficacy, the average scores from each questionnaire were computed and compared on two occasions. The initial analysis involved comparing baseline data with data obtained after 15 days of treatment, while the second analysis compared baseline data with data collected after 30 days of treatment. The software used for the analyses was GraphPad®.

3. Results

3.1. Efficacy outcomes

3.1.1. Erectile Function - IIEF [A] Score - (Erectile Function Domain)

The mean scores for IIEF [A] consistently improved from the baseline value of 25 ± 2.55 to 26.78 ± 1.86 on Day 15 and further to 28.22 ± 1.39 on Day 30. There were statistically significant differences was observed at Day 15 and Day 30, when compared to baseline. (Table 1 and Figure 1) The mean values of IIEF [A], providing information on erectile dysfunction, demonstrated a steady improvement from baseline to Day 30.

Table 1: IIEF [A]

Parameter	*Mean ± Standard deviation*		
	Baseline (N=9)	*Day 15 (N=9)*	*Day 30 (N=9)*
IIEF [A]	25 ± 2.55	26.78 ± 1.86 [a]	28.22 ± 1.39 [a]

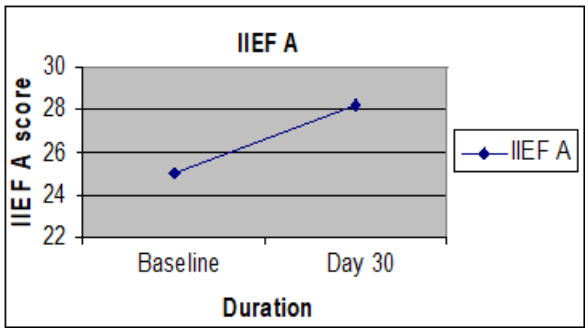

Figure 1: IIEF [A] Score

3.1.2. IIEF [B] score (libido, orgasm, intercourse frequency, intercourse satisfaction and overall satisfaction)

The mean values for IIEF-B at baseline and Day 30 indicate significant improvements in sexual function with the use of HeezOn®. Libido increased from 6.66 ± 1.32 to 8.55 ± 0.5 ($p<0.05$), Orgasmic Function improved from 8.22 ± 0.6 to 9.11 ± 0.33 ($p<0.05$), Intercourse Satisfaction rose from 8.22 ± 1.09 to 11.0 ± 0.7 ($p<0.05$), Intercourse Frequency increased from 1.88 ± 0.6 to 2.6 ± 0.7 ($p<0.05$), and Overall Satisfaction improved from 6.55 ± 0.88 to 8.22 ± 0.66 ($p<0.05$). There were statistically significant differences ($p<0.05$) for all parameters at Day 30 compared to baseline. These findings suggested a notable enhancement in libido, orgasmic function, satisfaction with intercourse, frequency of intercourse, and overall satisfaction with the use of HeezOn® over the study period, highlighting its positive impact on various aspects of sexual health. (Table 2 and Figure 2, 3, 4, 5, 6)

Table 2: IIEF [B]

Parameter	*Mean ± Standard deviation*	
	Baseline (N= 9)	*Day 30 (N= 9)*
Libido	6.66 ± 1.32	8.55 ± 0.5[a]
Orgasmic Function	8.22 ± 0.6	9.11 ± 0.33[a]
Intercourse Satisfaction	8.22 ± 1.09	11.0 ± 0.7a
Intercourse frequency	1.88 ± 0.6	2.6 ± 0.7[a]
Overall Satisfaction	6.55 ± 0.88	8.22 ± 0.66[a]

N = Number of participants

Note: Using Paired t test: [a]significant ($p< 0.05$) as compared to baseline

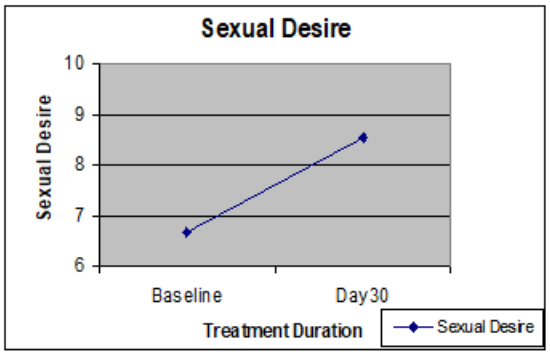

Figure 2: Sexual desire

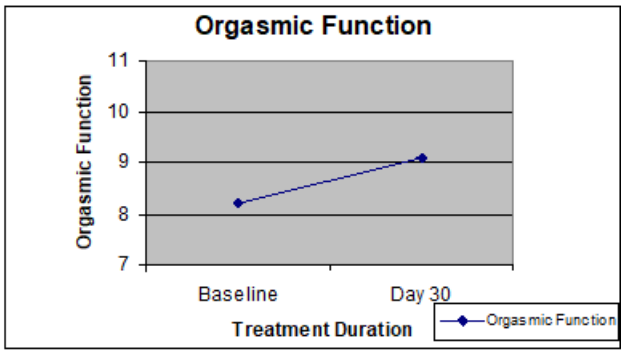

Figure 3: Orgasmic function

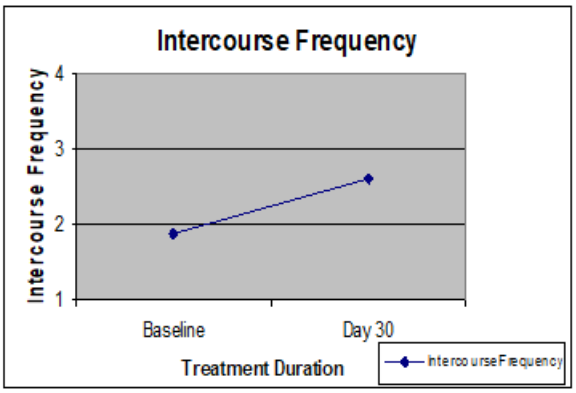

Figure 4: Intercourse satisfaction

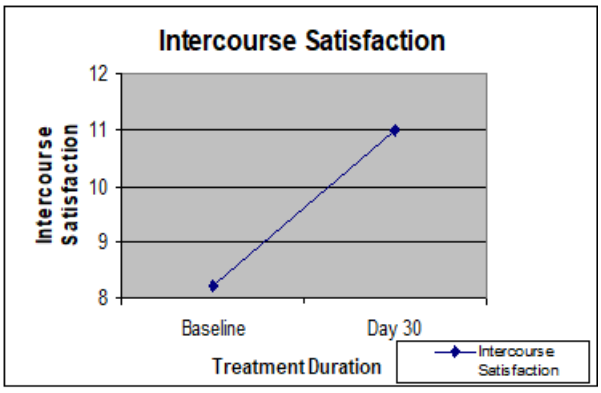

Figure 5: Intercourse Frequency

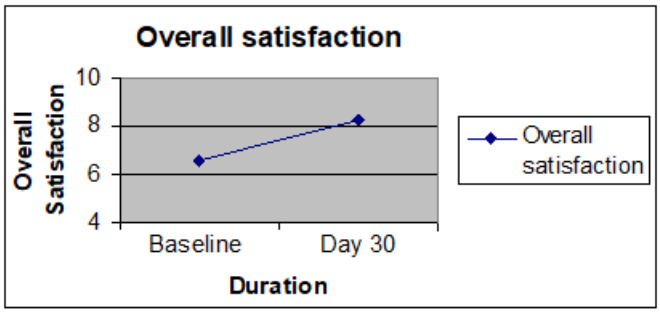

Figure 2: Overall satisfaction

Similar to IIEF (A) score, IIEF (B) exhibited significant enhancement from baseline (29.68 ± 2.29) to Day 15 (33.89 ± 1.62, p<0.05) and continued improvement on Day 30 (36.89 ± 1.17, p<0.05).

The combined score, IIEF [A+B], also displayed a noteworthy increased from 54.67 ± 4.44 at baseline to 60.67 ± 3 on Day 15 (p<0.05) and reached 65.11 ± 1.83 on Day 30 (p<0.05). There was statistical significance (p<0.05) for all time points compared to baseline. Thus, a substantial and clinically relevant improvement in erectile function and overall sexual satisfaction with the use of HeezOn® in this small-scale study. (Table 3 and Figure 7)

Table 3: Changes in IIEF scores as compared to baseline

Parameter	*Mean ± Standard deviation*		
	Baseline (N= 9)	*Day 15 (N= 9)*	*Day 30 (N= 9)*
IIEF [A]	25 ± 2.55	26.78 ± 1.86 [a]	28.22 ± 1.39 [a]
IIEF [B]	29.68 ± 2.29	33.89 ± 1.62 [a]	36.89 ± 1.17 [a]
IIEF [A+B]	54.67 ± 4.44	60.67 ± 3 [a]	65.11 ± 1.83 [a]

N = Number of participants
Note: Using Paired t test: [a]significant (p< 0.05) as compared to baseline

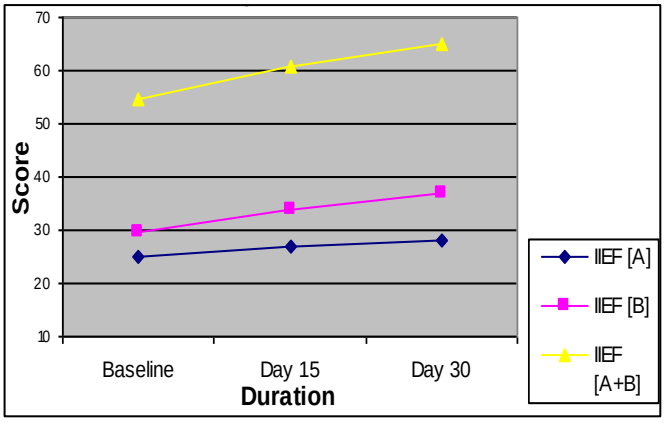

Figure 3: Changes in IIEF scores

3.1.3. Index of Premature Ejaculation (IPE)

The mean values (mean ± SD) of the IPE demonstrated a significant improvement from baseline (34.11 ± 5.21) to Day 30 (39.77 ± 2.68, p<0.05) in the study. A statistically significant difference (p<0.05) was observed at Day 30 compared to baseline. (Table 4 and Figure 8)

Table 4: IPE values

Parameter	*Mean ± Standard deviation*	
	Baseline (N=9)	*Day 30 (N=9)*
IPE	34.11 ± 5.21	39.77 ± 2.68 [a]

N = Number of participants
Note: Using Paired t test: [a]significant (p< 0.05) as compared to baseline

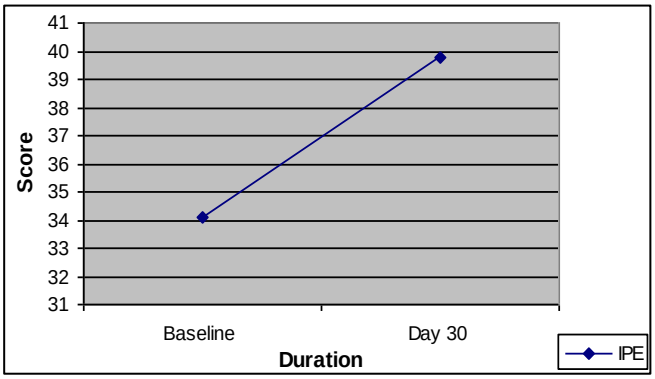

Figure 4: Index of Premature Ejaculation

3.1.4. Intravaginal Ejaculatory Latency Time (IELT)

The baseline (mean ± SD) IELT was 1.67 ± 0.82 minutes, which increased to 1.81 ± 0.68 and 2.19 ± 0.61 respectively, on Day 15 & Day 30. The increase in IELT on Day 30 was found to be statistically significant (p< 0.05) as compared to baseline. (Table 5 and Figure 9).

Table 5: IELT values

Parameter	*Mean ± Standard deviation*		
	Baseline (N=9)	*Day 15 (N=9)*	*Day 30 (N=9)*
IELT	1.67 ± 0.82	1.81 ± 0.68 [b]	2.19 ± 0.61 [a]

N= Number of participants
Note: Using Paired t test: [a]significant (p< 0.05) as compared to baseline, [b]not significant (p> 0.05) as compared to baseline.

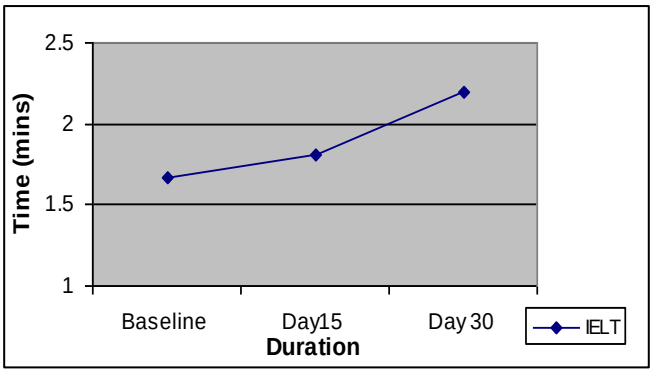

Figure 5: Intravaginal ejaculatory latency time

3.1.5. Serum Testosterone Level

The mean values (mean ± SD) of serum testosterone levels showed an increase from baseline (433.92 ± 158.64) to Day 30 (463.40 ± 113.61). However, the difference was not statistically significant (p>0.05). (Table 6 and Figure 10)

Table 6: Serum testosterone levels

Parameter	*Mean ± Standard deviation*	
	Baseline (N=9)	*Day 30 (N=8)*
Serum testosterone	433.92 ± 158.64	463.40 ± 113.61[b]

N = Number of participants
Note: Using Paired t test: [b]not significant (p> 0.05) as compared to baseline

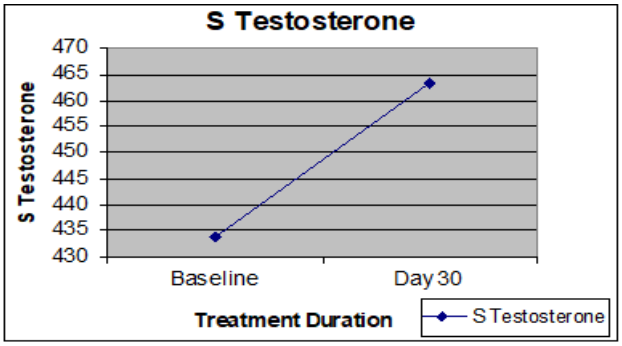

Figure 6: Serum testosterone levels

3.2. Safety outcomes

3.2.1. Vital parameters and Laboratory assessments

The mean values of vital parameters, including PR, RR, SBP, and DBP did not demonstrate any significant changes from the baseline to the end of the study. (Table 7) Furthermore, the mean values of laboratory parameters, including (CBC, ESR, SGPT, Serum creatinine) did not show any significant change when compared to the baseline. (Table 8)

This implies that, on average, there were no notable differences in these vital signs and specific laboratory measurements over the duration of the study.

Table 7: Vital parameters

Vitals	*Mean ± Standard deviation*	
	Baseline (N=9)	*Day 30 (N=9)*
PR	79.33 ± 2.45	78.22 ± 2.11 [b]
RR	17.22 ± 0.97	17 ± 0.71 [b]
SBP	124.22 ± 4.84	124.89 ± 3.89 [b]
DBP	82.89 ± 1.76	82.89 ± 2.85 [b]

N = Number of participants

Note: Using Paired t test: [b]not significant (p> 0.05) as compared to baseline

Table 8: Laboratory Assessments

Vitals	*Mean ± Standard deviation*	
	Baseline (N=9)	*Day 30 (N=8)*
Hemoglobin	13.5 ± 1.89	13.55 ± 1.48 [b]
Total RBC	5.21 ± 0.69	5.22 ± 0.69 [b]
Total WBC	7447.78 ± 1970.92	6177.5 ± 1185.65 [b]
Neutrophils	60.88 ± 6.71	60.9 ± 5.97 [b]
Lymphocytes	34.11 ± 3.41	33.87 ± 3.23 [b]
Eosinophils	3.78 ± 4.44	2.46 ± 2.04 [b]
Monocytes	1.17 ± 1.87	2.31 ± 2.76 [b]
Basophils	0.07 ± 0.2	0.33 ± 0.71 [b]
ESR	13.56 ± 8.73	9.37 ± 4.31 [b]
SGPT	30.49 ± 23.03	28.41± 20.30 [b]
Serum creatinine	0.86 ± 0.15	0.89 ± 0.14 [b]

N = Number of participants

Note: Using Paired t test: [b]not significant (p> 0.05) as compared to baseline

3.2.2. Adverse Events

No severe adverse events (SAE) were observed throughout the study, suggesting that HeezOn® capsule is safe within its intended indication for sexual dysfunction.

3.3. Tolerability outcome

A few individuals reported mild abdominal discomfort within the initial 15 days, particularly among those who had pre-existing complaints of indigestion, hyperacidity, loose motions, or nausea at baseline. However, all participants experienced gastrointestinal symptoms were relieved over the course of the study. Furthermore, two participants who complained of general weakness and headaches also reported relief from these symptoms later on in the study. Table 9 indicates that HeezOn® was very well-tolerated by approximately two-thirds of the study group. Only one-third of the participants reported mild side effects, which may or may not be directly related to study product.

Table 9: Tolerability assessments

Grade	*N*	*Percentage*
Very Good: No side effects	6	66.7%
Good: Mild side effects	3	33.3%
Fair: moderate side effects	-	-
Poor: Severe side effects requiring withdrawal of therapy	-	-
Total	9	100%

4. Discussion

This pilot study was carried out to provide the preliminary evidence for the safety as well as efficacy of HeezOn® on sexual function, quality of life and sexual satisfaction in young male subjects. The current study evaluated the effect of the IP on participants having borderline erectile dysfunction. The current study demonstrated approx. 20% improvement in the total erectile function score. Similar trend was observed in IPE score. The serum levels of the androgenic hormone i.e. testosterone increased by approximately 7% from baseline after just 30 days' administration of HeezOn®. This is in line with the previous study were significant increases in serum testosterone levels with the administration of ashwagandha root extract supplementation [27]. The increased testosterone levels indicate towards the adaptogenic property of the IP. The participants as well as their sex partners were found to be satisfied with improvement in sexual function after 30 day of the product administration.

Safety assessments included monitoring vital parameters and laboratory investigations. The mean values of parameters like Pulse Rate, Respiratory Rate, and Systolic & Diastolic Blood Pressure exhibited no significant changes throughout the study. Laboratory results (CBC, ESR, SGPT, Serum creatinine) also did not reveal significant deviations from baseline. The product was well-tolerated by two-thirds of the study group, with mild side effects observed in one-third of the participants. Further investigation in a larger clinical trial is warranted to determine the potential association of these side effects with HeezOn®. Importantly, there were no reports of severe adverse events (SAE) during the study period, indicating the safety of HeezOn®.

The improvement in male sexual health attributed to HeezOn® may have been linked to the presence several phytoactive of the individual ingredients of this patented formula. The compound protodioscin, derived from TT, is converted to DHEA, to enhance sexual function [28]. The increase in intracavernous pressure which confirms the pro-erectile aphrodisiac property of TT could potentially result from elevated androgen levels and subsequent release of nitric

oxide from nerve endings innervating the corpus cavernosum [29]. Similarly, some previous preclinical studies by Gauthaman K et al. [29], Chauhan NS et al. [14], [30], Suresh S et al., [31], Bansode FW et al. [32] reported significant improvement in sexual behaviour with intake of *Tribulus terrestris*, *Asteracantha longifolia*, *Curculigo orchioides*, *Mucuna pruriens*, *Asparagus adscendin*, respectively in rat model. The similar change has been observed as result of 30 days' administration of HeezOn®.

5. Conclusion

HeezOn®, a patented nutraceutical formula featuring a blend of indigenous botanical herbs, has demonstrated potential effect on male sexual functions. The study found the formula to be safe, with no major adverse events reported in the study. Both subjective and objective assessments confirmed HeezOn® effectiveness in enhancing the overall quality of sexual life among participants with diverse forms of sexual disorders. In conclusion, this study established HeezOn® as a complete formulation for male sexual dysfunction in terms of safety, efficacy, and tolerability.

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