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***Corresponding author:** Giulio Perrotta, Institute for the Study of Psychotherapies (I.S.P.), Via San Martino Della Battaglia N, 31, 00185, Rome, Italy, Tel: +39 349 21 08 872; E-mail: info@giulioperrotta.com

ORCID: <https://orcid.org/0000-0003-0229-5562>

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Research Article

Perrotta Hypersexuality Questionnaire (PeHy-Q): Development, regulation and validation of a new psychometric instrument for the diagnosis of hypersexuality

Giulio Perrotta*

Institute for the Study of Psychotherapies (I.S.P.), Via San Martino Della Battaglia N, 31, 00185, Rome, Italy

Abstract

Introduction: The clinically relevant condition of hypersexuality is to date nebulous in its definition, and although it is understood as a psychological and behavioural alteration as a result of which sexually motivated stimuli are inappropriately sought and often experienced in a way that is not entirely satisfactory, it is unclear whether it is an obsessive disorder or is a trait of a more complex personality disorder or a consequence arising from a medical condition, whether primary or secondary.

Methods: Using the Perrotta Hypersexuality Global Spectrum of Gradation (PH-GSS) as a model, the clinical and control population was selected to validate a new psychometric test, then compared with the Sexual Addiction Screening Test (SAST-R, v. 2.0).

Results: Statistical analysis showed that the new psychometric test has a well-defined and stable construct ($R = 0.975$; $p = 0.000$), the variables are well represented ($R = 0.999$; $p = 0.000$) and it is positively correlated with the other constructs already validated ($R = 0.951$; $p = 0.000$).

Conclusions: Perrotta Hypersexuality Questionnaire (PeHy-Q) is a valid, efficient, and effective psychometric tool to diagnose the clinically relevant condition of hypersexuality to improve the structural and functional framing of the patient and the appropriate therapy to pursue.

Background

The concept of “hypersexuality” belongs to modern parlance, according to a predominantly clinical meaning, understood as a psychological and behavioural alteration as a result of which sexually motivated stimuli are sought in inappropriate ways, often experienced in a way that is not completely satisfactory; it is a psychopathological label strongly desired by the scientific community to replace the terms previously used in other areas of study as well, such as nymphomania and satyriasis, the former referring to the female sexual gender and the latter to the male sexual gender [1,2].

Today, hypersexuality is proposed differently and with a predominantly clinical connotation; in fact, it is present in the two main diagnostic manuals of psychiatric problems: the International Classification of Diseases (ICD) [3] and the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) [4]: a) the ICD is the international classification proposed by the World Health Organization; it is not specific to mental disorders alone, to which, however, a section is dedicated anyway, and it encapsulates the diagnostic criteria for all possible organic disorders; b) the DSM-5-TR, on the other hand, is the proposal from the American Psychiatric Association group and, currently, the most widely used classification in the international scientific community, being devoted entirely to psychopathologies [5].

However, if the two classification systems are equivalent in terms of formulation and representation, this is not true for several clinical hypotheses, including hypersexuality itself; this is an expression of a difficulty on the part of the expert editors to frame this particular clinical case in a structural and sharable way. Hypersexuality falls under “Sexual Compulsive Behavior Disorder” (code 6C72) for ICD-11, while for DSM-5-TR it is considered a behavioural addiction that can characterize the subject’s pathological conduct and even be a dysfunctional trait in other disorders; for that reason, there is no true hypersexuality disorder in the DSM-V-TR, because for the American Psychiatric Association: a) there was no unanimous agreement on the nature of the disorder (whether a compulsion, behavioural addiction, simple symptom, or psychiatric disorder; b) the criteria were tested only on the clinical sample and not on a representative sample of the population [5-8].

The nebulosity of this disorder is easily perceived even by the difficulty of framing its severity scale, as well as in using a psychometric test that in its formulation does not contain items overtly focused on psychopathological mood or personality traits. Therefore, the writer was prompted by the necessity to contribute positively to the clinical discussion by producing the Perrotta Hypersexuality Global Spectrum of Gradation (PH-GSS), which was able to distinguish high-functioning forms (proactive and dynamic hypersexuality) from low-functioning forms (attenuated and corrupted) in 5 grades. This scale inspired the present work to develop a psychometric test capable of assessing the degree of functional impairment [5].

Aim

A validation study was conducted to determine whether the proposed psychometric instrument is capable of being reliable and valid for the diagnosis of hypersexuality, regardless of the patient’s psychopathological condition, which may or may not warrant it. Thus, this discussion aims to try to determine whether, in the current state of scientific knowledge, it is possible to validate the proposed psychometric instrument relative to the condition of hypersexuality.

Materials and methods

Study design

Development, regulation, and validation of a new psychometric instrument of hypersexuality, that was based on the model of the Perrotta Hypersexuality Global Spectrum of Gradation (PH-GSS).

Materials and methods

Starting from the Perrotta Hypersexuality Global Spectrum of Gradation (PH-GSS), it was decided to design a questionnaire that would take into account 3 main characteristics: 1) the wording of the items must describe a characteristic of hypersexuality and not a or more dysfunctional personality traits or psychiatric disorders described by the official international scientific nosography (in order to avoid that the diagnosis could be contaminated by the descriptive bias of

one or more typical mental disorders in hypersexual patients, such as bipolarism, major depression, manic and borderline personality disorder), as well as some neurodegenerative disorders that have as cognitive-behavioral features precisely hypersexuality (such as Parkinson’s and frontal dementia); 2) the responses to the items should offer a range of multiple responses related to both the intensity of the hypersexual characteristic and its frequency, so that the final score can be the summation of enboth variables; 3) the items should be divided by 4 sub-areas of functioning, which are known to be affected in hypersexual patients (cognitive, behavioral, emotional-affective, and social-environmental), so that in scoring sites the individual sub-areas can be assessed against the final total score. The interpretive grid was then designed based on the Perrotta Hypersexuality Global Spectrum of Gradation (PH-GSS) (Table 1).

The method used consists of two consecutive operations: the first is related to the clinical interview, based on narrative anamnestic and documentary evidence, with an interview regarding the emotional and perceptual-reactive experience of the patient; the second is related to the administration in the first instance of the Perrotta Hypersexuality Questionnaire (PeHy-Q) and the Sexual Addiction Screening Test (SAST-R, v. 2.0) [9], and in the second instance, after three months, again using the PeHy-Q, to allow full statistical analysis for validation of the latter. The stages of the research were divided as follows: 1. Selection of the population sample, according to the parameters given in the next paragraph. 2. Clinical interview with each population group, as indicated in the next paragraph. 3. Administration of psychometrical tests. 4. Data processing after administration. 5. Comparison of the data obtained.

Setting and participants

Inclusive requirements for the selection of the clinical population are 1) Age between 18 years and 85 years; 2) Italian nationality; 3) psychiatric diagnosis and active manifestation of hypersexual symptoms. Exclusion criteria for the selection of the clinic population sample are 1) age under 18 years or over 85 years; 2) foreign nationality, even if resident, domiciled, or dwelling in the Italian territory; 3) absence of symptomatology related to hypersexuality; 4) informed consent and processing of sensitive data absent, deficient or illegitimate; 5) neurodegenerative pathological.

Inclusive requirements for the selection of the control population are 1) Age between 18 years and 85 years; 2) Italian nationality; 3) absence of hypersexual symptoms throughout developmental age, or presence of hypersexual symptoms systems that have not persisted for more than 1 week and 1 time only. The exclusion criteria for the selection of the clinic population sample are 1) age under 18 years or over 85 years; 2) foreign nationality, even if resident, domiciled, or dwelling in the Italian territory; 3) presence of symptomatology related to hypersexuality; 4) informed consent and processing of sensitive data absent, deficient or illegitimate; 5) neurodegenerative pathological.



Table 1: Perrotta Hypersexuality Global Spectrum of Gradation (PH-GSS). Perrotta G. The Concept of “Hypersexuality” at the Boundary between Physiological and Pathological Sexuality. *Int J Environ Res Public Health.* 2023; 20:5844.

High-Functioning Pathological			
Level	Colour	Definition	Behaviour
1	Pink	Pro-active hypersexuality	The subject presents an accentuation of the sexual storyline in terms of drive needs that are higher than the statistical average of the reference population but still fall within the physiological framework or subjective normality because they do not respond to any existing nosographic pathological profile. He or she can moderate his or her behaviour and adapt to the social context, despite feeling a reasonably more significant drive present than expected due to age and individual and collective relational context. The fulfilment of these needs is embodied in a greater drive to seek and achieve them, but no dysfunctional conduct, relevant paraphiliac comorbidities, or excessively impulsive acts are present.
2	Yellow	Dynamic hypersexuality	The subject presents a marked accentuation of the sexual plot in terms of drive needs higher than the statistical average of the reference population but still falling within the physiological framework or subjective normality because they do not respond to any existing nosographic pathological profile. He is still able to moderate his behaviour and adapt to the social context, despite feeling an unreasonably greater drive than expected due to his age and individual and collective relational context. The fulfilment of these needs is embodied in a greater propulsive drive in the pursuit and realisation of these needs in practice, but dysfunctional behaviours and paraphiliac comorbidities of mild significance are already present in the absence, however, of excessively impulsive.
Pathological attenuated functioning			
Level	Colour	Definition	Behaviour
3	Orange	Dysfunctional hypersexuality	The subject presents a significantly marked accentuation of the sexual plot in terms of drive needs that are higher than the statistical average of the reference population and no longer within the physiological or subjective normal framework. He moderates his behaviour with difficulty, and his functional adaptation to the social context appears coarse and irreverent, precisely because of the markedly more significant sexual drive than expected, due to age and individual and collective relational context. The fulfilment of these needs is substantiated by an excessive propulsive drive in the concrete pursuit and realisation, dysfunctional conduct, paraphiliac comorbidities of moderate significance, and impulsive acts out of context.
4	Red	Pathological hypersexuality (grade I)	The subject presents a disproportionate accentuation of the sexual plot in terms of drive needs that are higher than the statistical average of the reference population and no longer within the physiological framework or subjective normality. He is hardly able to moderate his behaviour, and his functional adaptation to the social context appears out of context and often excessive, precisely because of the significantly more pronounced sexual drive than expected due to age and individual and collective relational context. The fulfilment of these needs is substantiated by an extreme drive in the concrete pursuit and realisation, and dysfunctional behaviours, paraphiliac comorbidities of serious relevance, and impulsive out-of-context acts are present; however, he is aware of his acts and is concerned about the possible negative implications in the social context (ego-dystonia) but is not fully attuned to his emotional plan.
Pathological to corrupt functioning			
Level	Colour	Definition	Behaviour
5	Purple	Pathological hypersexuality (grade II)	The subject presents a disproportionate and unreasonable accentuation of the sexual plot in terms of drive needs well above the statistical average of the reference population and no longer within the physiological or subjective normalcy framework. He is unable to moderate his behaviour, and his functional adaptation to the social context appears severely compromised, precisely because of the significantly more pronounced sexual drive than expected due to age and individual and collective relational context. He exposes himself to danger for himself and others, gives no weight to the negative consequences of his behaviour, and adopts insane, promiscuous, impulsive, and instinctive conduct. The fulfilment of such needs is substantiated by an uncontrollable propulsive drive in concrete pursuit and fulfilment, severe dysfunctional conduct, paraphilias comorbidities of extreme pathological relevance, and impulsive and irrational acts out of context. He is not aware of his acting out (ego-syntony) and his emotional plane, although he may display emotions and feelings that seemingly prove otherwise.

The chosen setting, tender standing during the protracted pandemic period (already in progress since the beginning of the present research), is the online platform via Skype and WhatsApp Video Calls, both for clinical interviews and administration. The present research work was carried out from March 2020 to April 2023. All participants were guaranteed anonymity and the ethical requirements of the Declaration of Helsinki were met. Because the research is not funded by anyone, it is free of conflicts of interest. The clinical sample of the selected population (Clinical Group, CG), which meets the requirements, is 204 participants (N: 102/m, 102/f; Range-age: 18–84/m, 18–85/f; Mean-age: 51.36/m, 51.90/f); with the equal constitution (204 participants), the control group was also selected, for a total of 408 participants (Figure 1).

Questionnaire (Appendix 1)

Results

Development and regulation of the new questionnaire (PeHy-Q)

Perrotta Hypersexuality Questionnaire (PeHy-Q) measures the patient’s degree of clinical impairment concerning his or her hypersexual condition, either presumed or precedently established, throughout developmental age, from late adolescence (18 years) to mature age (85 years). It consists of 20 items with double response binary:

1) YES/NO (Y/N): on the “Response” column, the patient will tick “YES” if the item describes a characteristic of him or “NO” otherwise (Table 2);



2) Scale 0–5: on the “Intensity (I) – Frequency (F)” column, the patient will double–tick a numerical value 0–5 (Table 3).

In responding to the items, the patient should refer to all hypersexual temporal episodes he or she has experienced in the last six months of life if he or she has not been diagnosed with bipolar disorder or alternates manic or hypomanic episodes with depressive or dystonic episodes in the absence of an overt diagnosis, since in the latter case the patient should refer only to hypersexual temporal episodes during manic or hypomanic states, again in the last six–month time window. If the period window is less than 6 months he will consider the actual period experience.

Thus, at the initialing stage, the therapist will indicate in the “Sub–score” column, for each line, the value initialed by the patient in the “Intensity (I) – Frequency (F)” column, then summing the results for each subarea (expressed in $x/50$) and the results for each component, “I” for intensity and “F” for frequency (expressed in $x/25$); the sum of all sub–areas

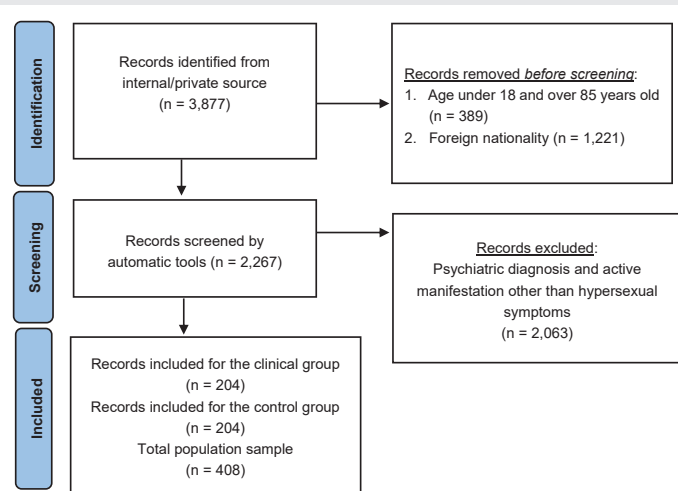


Figure 1: Flowchart of the population sample selection process.

Table 2: Perrotta Hypersexuality Questionnaire (PeHy-Q): Intensity-value (I).

Intensity-value (I)	
✓ 0 = "Absence of hypersexual characteristics".	
✓ 1 = "Mild" (does not produce psychological concern or distress in the patient or the hypersexual production is otherwise easily manageable without external support).	
✓ 2 = "Moderate" (does not produce functional impairment despite the patient stating concern and/or psychological distress, sometimes capable of producing mild distraction from personal and professional commitments).	
✓ 3 = "Intense" (produces mild-to-moderate functional impairment, characterized by significant concern and/or psychological distress capable of producing moderate distraction from personal and professional commitments).	
✓ 4 = "Severe" (produces intense functional impairment, characterized by marked worry and/or psychological distress capable of producing relevant distraction (difficult to resist) from personal and professional commitments).	
✓ 5 = "Extremely Severe" (produces severe functional impairment, characterized by excessive worry and/or psychological suffering capable of producing an irrepressible source of distraction from personal and professional commitments).	

Table 3: Perrotta Hypersexuality Questionnaire (PeHy-Q): Frequency-value (F).

Frequency-value (F)	
✓ 0 = "Absence of hypersexual characteristics".	
✓ 1 = Less than 1 time per week (<1/week).	
✓ 2 = From 2 to 3 times a week (2-3/week).	
✓ 3 = At least 1 time per day (1/day).	
✓ 4 = From 2 to 3 times a day (2-3/day).	
✓ 5 = More than 3 times a day (>3/day).	

produces the final score expressed in $x/200$. There is no deadline by which sealing must be done, but it must be administered in a lump sum. Once all subscores (those of the subareas) and the final score have been obtained, it will be possible to interpret the outcomes, also broken down by intensity and frequency, based on the “Perrotta Hypersexuality Global Spectrum of Gradation (PH–GSS)” and according to the present rules (Table 4).

The exact identification of the “I” and “F” scores for each subarea also clarifies to the therapist the actions to plan the clinical intervention specifically.

Validation of the new questionnaire (PeHy-Q)

Comparison of test structures

Introduction: Based on the description of the Perrotta Hypersexuality Questionnaire (PeHy-Q), the Sexual Addiction Screening Test (SAST-R, v. 2.0) [9], designed by Dr. Patrick Carnes to help assess sexually compulsive or “addictive” behaviours; developed in collaboration with hospitals, treatment programs, private therapists, and community groups, the SAST provides a profile of responses that help discriminate between addictive and non-addictive behaviours and is broken down into 45 items with dichotomous yes/no responses, but only the first 20 items, i.e., those that fall under the core item scale, positive in the case of scoring above 6/20, were considered for comparison (Figure 2).

Coefficient of stability: A binary correlation analysis was conducted between the first administration of the Perrotta Hypersexuality Questionnaire (PeHy-Q) and the second administration, which occurred after 3 months, to check the stability of the test, obtaining a Pearson’s coefficient (R) of 0.999, with $p = 0.000$.

Factorial analysis: An exploratory factor analysis was conducted on the Perrotta Hypersexuality Questionnaire (PeHy-Q), using the Maximum Verisimilitude method for individual items, and an oblique rotation (Promax). The results obtained showed the exact coincidence of the same responses in the following item pairs between the PeHy-Q (first value) and the SAST-R (second value): 1–3; 4–2; 14–5; 17–6; 16–8; 6–9; 5–10; 15–11; 13–6; 12–17; 11–18; 3–19. Items 2, 7, 8, 9, 10, 18, 19, and 20 of the PeHy-Q could not be matched with items 1, 4, 7, 12, 13, 14, 15, 16, and 20 of the SAST-R, as the content was not coincident, by test structure. The correlation matrix with Oblique Rotation (Promax) is 0.951, with $p = 0.000$.

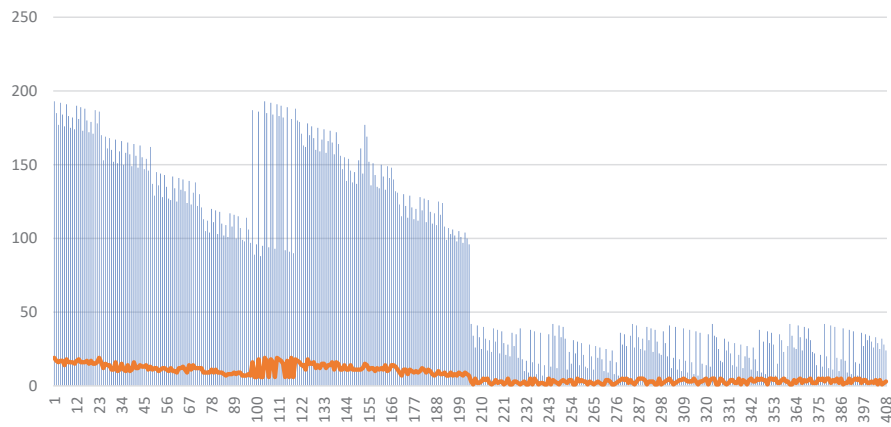


Figure 2: Comparison of the scores of the 2 psychometric tests: PeHy-Q (blue); SAST-R (orange).

Table 4: Perrotta Hypersexuality Questionnaire (PeHy-Q): interpretive rules.

Interpretation of the final score expressed as $x/200$:

- a) 0: Absence of hypersexual characteristics;
- b) 1-40: High-functioning pathological condition (proactive diagnosis, pink colour);
- c) 41-80: Pathological condition with good functioning (dynamic diagnosis, yellow colour);
- d) 81-120: Medium-functioning pathological condition (dysfunctional diagnosis, orange colour);
- e) 121-160: Pathological conditions with low or impaired functioning (pathological diagnosis, red colour);
- f) 161-200: Pathological condition with corrupt functioning (pathological diagnosis, purple colour).

Interpretation of the score of each subarea (COG, BFH, FMA, SOE), expressed as $x/50$:

- a) 0: Absence of hypersexual characteristics;
- b) 1-10: High-functioning pathological condition (proactive diagnosis, pink colour);
- c) 11-20: Pathological condition with good functioning (dynamic diagnosis, yellow colour);
- d) 21-30: Medium-functioning pathological condition (dysfunctional diagnosis, orange colour);
- e) 31-40: Pathological conditions with low or impaired functioning (pathological diagnosis, red colour);
- f) 41-50: Pathological condition with corrupt functioning (pathological diagnosis, purple colour).

Interpretation of the "I" (intensity) score for each sub-area, expressed as $x/25$:

- a) 0: Absence of hypersexual characteristics;
- b) 1-5: Proactive intensity (or mild grade);
- c) 6-10: Dynamic intensity (or moderate grade);
- d) 11-15: Dysfunctional intensity (or intense grade);
- e) 16-20: Pathological intensity of grade I (or severe grade);
- f) 21-25: Pathological intensity of grade II (or extreme grade).

Interpretation of the "F" (frequency) score for each sub-area, expressed as $x/25$:

- a) 0: Absence of hypersexual characteristics;
- b) 1-5: Proactive frequency (or mild grade);
- c) 6-10: Dynamic frequency (or moderate grade);
- d) 11-15: Dysfunctional frequency (or intense grade);
- e) 16-20: Pathological frequency of grade I (or severe grade);
- f) 21-25: Pathological frequency of grade II (or extreme grade).

Validity indexes: The criterion validity index (for efficiency and accuracy), of the Perrotta Hypersexuality Questionnaire (PeHy-Q), taking into account the comparison items, is 1.000, while the construct validity index is 0.975. The convergent validity between the PeHy-Q and SAST-R is 0.951 and $p = 0.000$.

Discussion

Perrotta Hypersexuality Questionnaire (PeHy-Q) is a psychometric instrument designed to meet the diagnosis of hypersexuality, regardless of the etiology of the dysfunction,



avoiding the use of items that may already channel one or more traits of a specific psychopathological disorder (e.g., depression, bipolar, and mood alterations, as well as dementia-like neurodegeneration). The questionnaire is structured to focus exclusively on hypersexual symptoms and the implications arising from them, both personally and relationally, and socially. For this reason, comparison with the Sexual Addiction Screening Test (SAST-R, v. 2.0) was only possible for some items; nevertheless, statistical analysis confirmed what was hoped for, namely, that the PeHy-Q has a well-defined and stable construct ($R = 0.975$; $p = 0.000$), the variables are well represented ($R = 0.999$; $p = 0.000$), and it is positively correlated with another already validated construct ($R = 0.951$; $p = 0.000$). The values obtained are so significant that they represent an added value for this validation, proving to be a valid and effective psychometric tool for the assessment of hypersexual states.

Limitations, implications for clinical practice and prospects

In this validation analysis, the main limitation found relates to the co-item, which cannot be compared with the entirety of the Sexual Addiction Screening Test (SAST-R, v. 2.0) but only with the main clinical items (items: 1–20); however, this limitation did not prevent the statistical analysis carried out from giving good results in terms of stability, effectiveness, and efficiency, and thus validating the psychometric instrument.

Through the use of the Perrotta Hypersexuality Global Spectrum of Gradation (PH-GSS), it was, therefore, possible to construct a questionnaire that would concretely realize the need to recognize, by intensity and frequency, hypersexual symptomatology, and define: “[...] the systematic grading of hypersexuality, to be able to frame the subject more structurally and functionally, choosing the most appropriate treatment and avoiding letting the therapist decide based on his or her simple and subjective assumption or interpretation of the patient’s symptomatic experience. It is therefore essential to succeed in carrying out such an operation to give clinical dignity to a condition that, to date, has not been fully explained [...]” [5].

Future perspectives will be geared toward administering the Perrotta Hypersexuality Questionnaire (PeHy-Q) to a broader population to perfect the assessment at the diagnostic stage, with special emphasis on the specific etiology of the relevant clinical condition.

Conclusion

Perrotta Hypersexuality Questionnaire (PeHy-Q) is a psychometric instrument with a well-defined and stable construct ($R = 0.975$; $p = 0.000$), with the variables well represented ($R = 0.999$; $p = 0.000$) and positively correlated with another construct already validated ($R = 0.951$; $p = 0.000$), to identify the clinically relevant condition of hypersexuality.

Institutional review board statement

All participants were assured of compliance with the ethical requirements of the Charter of Human Rights, the

Declaration of Helsinki in its most up-to-date version, the Oviedo Convention, the guidelines of the National Bioethics Committee, the standards of “Good Clinical Practice” (GCP) in the most recent version, the national and international codes of ethics of reference, as well as the fundamental principles of state law and international laws according to the updated guidelines on observation studies and clinical trial studies.

Informed consent statement

Subjects who gave their informed consent agreements were recruited; moreover, these subjects requested and obtained from GP, as the sole examiner and project manager, not to meet the other study collaborators, thus remaining completely anonymous.

Data availability statement

The subjects who participated in the study requested and obtained that GP be the sole examiner during the therapeutic sessions and that all other authors be aware of the participant’s personal data in an exclusively anonymous form.

Acknowledgement

The author who contributed to the work is 1. The single author has read and approved the final manuscript.

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