Cuckolding and Troilism: definitions, relational and clinical contexts, emotional and sexual aspects, and neurobiological profiles. A complete review and investigation into the borderline forms of the relationship: Open Couples, Polygamy, Polyamory

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Abstract
Starting from the concept of “cuckold” and having placed the substantial differences with the “troilism”, despite the terminological error committed by almost all the researchers who consider these two terms of synonyms, we proceeded to analyze the clinical, neurobiological and relational profiles, to then investigate the borderline forms of troilism: Open couples, polygamy and polyamory. By analyzing the possible etiological causes, which are the basis of these manifestations, it was concluded that probably the multifactorial is the most suitable answer, with a clear orientation towards the psychological causes deriving from a post-traumatic stress adaptation (substantially in the field of paraphilias or narcissism with adaptive forms, therefore self-destructive).

Contents of the manuscript
Definition, differential diagnosis, and clinical context

The behavior of voluntarily and knowingly inducing one’s partner to perform sexual acts with other people, to receive emotional and sexual gratification, is labeled with the English term (but of French derivation) improper, derogatory and incorrect of “cuckolding”, also if the correct terminology of clinical matrix is “troilism” [1,2].

The terminological error, committed in almost all revisions and published research, can be deduced from the same sexual activity carried out by the couple in those contexts [1,3].
In "trollism"

a) There is the conscience and will, between the two components of the couple, to share the sexual experience, in a more or less egalitarian way;

b) The sexual experience is lived as a couple of game and for this reason shared in all its moments, from the predation of the third component (bull, in the context of threesome) or of a couple (in the context of foursome or quadrilateral) to the realization specifically of sexual acts, up to the emotional and emotional manifestation experienced before, during and after. With the addition of the fifth component, the experience turns into an orgy (if they both play) or gangbang (if the taxpaying person is only a member of the couple);

c) The emotional and emotional manifestations experienced before, during and after the sexual experience are shared between the two partners of the main couple, and enrich the experiential background of the individual components and of the couple itself, consolidating the relationship and love relationship;

d) Between the couple’s partners there is a precise code of conduct, pre-established and organized in detail, which makes the experience pleasant, consciously desired and managed in such a way as not to deprive the relationship bond of dignity, honesty, sincerity and loyalty and loving existing;

e) Although the desire for trilogy is almost always stronger in one of the two partners, understanding, listening and respect for the other partner make this emotional and sexual experience capable of strengthening the bonds and satisfying the individual components of the couple, as long as there is awareness of one’s emotions, needs and expectations, and that they are compatible with those of the partner, in a game of communion, altruism, and completeness, without prejudice or preconceptions. The lack of awareness or willingness or the purpose of satisfying the partner without a real sharing of ends will lead the couple to live the experience negatively, causing irreparable emotional breakdowns.

f) The sexual act performed by one of the two partners of the main couple is not experienced by the other as a violence to his person or as a humiliation capable of provoking denigration, as emotionally the couple is placed on a relational level and emotionally different from that of the subjects who interact with them and therefore they are experienced as objects of pleasure, as tools that have the purpose of provoking pleasure.

In "cuckolding"

The sexual experience is not experienced as a couple game but as a violence to the person who betrays trust and relational and loving bond (eventually, the conscious partner accepts the situation because it is convenient for maintaining the couple’s relationship but not it is experienced as an exploratory moment of the emotions and sensations, needs and needs of the individual parts);

The emotional and emotional manifestations experienced before, during and after the sexual experience are not shared between the two partners of the main couple (or at most the object of discussion is the carnal act itself and the use of the partner as means to achieve the realization of paraphilia), and therefore do not enrich the experiential baggage of the individual components or of the couple itself, disintegrating the relationship bond from within and loving, often with unawareness of the other partner. In this way, the lawyer is weighed down by feelings of guilt and shame that can irreparably influence the relationship and feelings;

Between the partners of the couple, there is no pre-established code of conduct, organized in detail (or if there is a code of conduct this is expressed – in the best of cases – in the general and essential rules, sometimes modified from time to time in based on specific needs and almost always by one of the two components of the main couple), since the sexual experiences lived by one of the two partners (or both separately) are characterized by being secret and hidden (or in any case not open and shared). The borderline form between cuckolding and trollism is precisely that of the “conscious cuckold”: in this case, one of the two partners or both are aware of the respective betrayals of the other (“open couple”) but both decide not to share the experiences and not to speak about it, if not occasionally and to organize the couple’s daily life. However, this hypothesis falls fully into the category of “cuckoldism” since the absence of secrecy (given by the awareness of betrayal) still affects negatively (since there is always a lack of sharing of experience and of a common code of conduct, which continue to harm the couple from the inside); although this solution may seem suitable to continue the experience of the love relationship, perhaps in crisis, in reality, these circumstances undermine the relationship from the inside, making it implode slowly until one of the two or both will find the ideal partner for the final decision of concluding the relationship or marriage experience with the main partner;

In the couple, the sharing of experience and therefore the constructive moments of listening and mutual respect of emotional manifestations is missing in whole or in part;

The sexual act performed by one of the two partners of the main couple is experienced by the other as a violence to the person or as a humiliation capable of provoking denigration since emotionally it is not the couple who plays or decides the rules but it is only one of the two components and the other is the victim of the game or the clandestine relationship. The word used in this context, “cuckold” (masculine) or “reverse cuckold or cuckquean” (feminine), which derives from the medieval French “cucullat”, literally means “the bad cuckoo”, about the female of the cuckoo who is said that often changes...
the companions or the habit, scientifically observed, of the cuckoo to leave the eggs in the nest of another bird.

**Troilism, in particular, it can be of three types**

a) “Relational”, when the search for pleasure from one of the two partners or both is aimed exclusively at the courtship and attraction phase, never moving on to the sexual act, not even in a simple form (for example, sexual foreplay).

b) “Sexual” (Polygamy), when the pursuit of the pleasure of one of the two partners or both is aimed at carrying out sexual acts, more or less complete, in simple or complex form. Polygamy can manifest itself in several forms.

- Type A: is the exclusively sexual form, in which the two partners of the couple seek and mature sexual experiences without interacting with outsiders, except marginally and minimally for the approach and never after the completion of the sexual act. It happens especially in the first polygamous experiences and in the threesome hypothesis, as the lack of experience or the fear (for jealousy or possessiveness) that the third party could interfere in the relationship life of the couple pushes the partners to deny any possible relationship except to the extent of play as a couple and in contexts strictly you decide by the couple itself.

- Type B: is the attenuated sexual form, in which the two partners open the sexual relationship also to profiles of friendly acquaintance with the third party or the couple, interacting in a unitary way, as if the couple were a monad. It happens above all in the consolidated polygamous experiences and in relationships with other couples or after a long time that the third component plays with the couple and has demonstrated its seriousness and its ability to respect the rules, but always within precise relational stakes imposed by the couple.

- Type C: it is the pure sexual-relational form, in which the two partners open themselves completely to the third or the external couple, establishing friendly relationships also independent of the good-natured control of the partner of the main couple, in a regime of mutual respect and trust. It happens when the main couple has experience gained over time and the outsiders are subjects of extreme trust, capable of respecting the rules given over time, including those implicitly imposed without formal sharing. However, this form excludes any relationship of a sentimental nature, contemplating only the friendly and affective relational forms.

c) “Sentimental” (Polyamory), when the pursuit of the pleasure of one of the two partners or both is aimed at establishing with the third party or the couple or more external partners a love relationship contemporary to the main one, in agreement with the partner principal who is aware of it and accepts its consequences. Polyamory can manifest itself in different forms:

- Type A: it is the attenuated form, in which the two partners open themselves to a love relationship with a third external subject, in a subordinate condition concerning the main couple. Although the lawyer that is established is of a love type, this happens in a unidirectional way towards only one of the two partners and the main couple considers the lawyer subordinate to the love relationship lived between the two main partners.

- Type B: it is the simple form, in which the two partners open up to a loving relationship with a couple who plays the role of external subject, in a subordinate condition concerning the main couple. Although the lawyer who is established is of the amorous type, this happens unidirectionally but towards and both partners: A + B are the main couple, C + D are the external couple; A lovingly relates to D and B relates to C, in a continuous affective, sexual and sentimental relational exchange.

- Type C: it is the complex form, in which the two partners open themselves to a love relationship with a third party or a couple without subordination. Everyone is put on the same level and everyone can relate to everyone, where any one-way exclusivity (A–D / B–C) does not affect the intensity of the feelings felt. Therefore, the love relationship of the main couple is on the same relational and sentimental level as the third or the couple.

In the animal kingdom, this practice is rather studied about fertilization possibilities and the increase in opportunities for procreative purposes, especially in mammals and birds [4] and less in the marine kingdom [5].

About human beings, the topic under examination has been debated above all in humanistic and literary fields [6], while clinical areas have begun to interest you recently, especially in terms of relational areas, flows of consciousness, and emotional material [7].

**The etiology of the phenomenon and neural correlates**

The etiology of Troilism is debated in the scientific community, precisely because there are no statistically significant data or oriented research; the possible causes, on a theoretical basis and the basis of some hypotheses, are mainly two [3]:

1) A genetic predisposition (biological cause);

2) A post–traumatic stress adaptation that occurs in the context of paraphilias or narcissism to adaptive forms, therefore self–destructive (psychological cause).

Concerning the first hypothesis (biological cause), the scientific community agrees in considering these practices a real form of paraphilia and therefore, in the absence of
targeted research, the hypothesis that these subjects have the same neural correlates must be considered plausible of the declaredly paraphilic subjects. However, the research does not fully clarify the reasons why certain subjects suffer from certain paraphilias and not all of them, thus hypothesizing a contributing cause with personal episodes experienced by the subject capable of orienting the person more towards one or more types of paraphilia [8]. However, some research lays the foundations for interesting intuitions that could prove to be exact; in particular:

a) Galanine is a peptide that regulates the release of pituitary hormones, nutrition, and reproductive and parental care behaviors. In teleostal fish, a higher expression of galanine is associated with reproductively active territorial males. Previous transcriptome studies of the lowland background (Porichthys notatus), a highly vocal teleostal fish with two male morphs that follow alternative reproductive tactics, show that galanine is upregulated in the preoptic–anterior hypothalamus (POA–AH) area of nesting, courtship type I males during spawning compared to type II cuckolding males. Females differ dramatically from both male morphs in the number of somata that express galanine and in the distribution of fibers, especially in the vocal–acoustic nuclei of the brain stem and in other sensory integration sites which also differ, although less widely, among the male morphs. Double–labeling shows that mainly separate populations of POA–AH neurons express galanine and arginine–vasotocin or isotocin non–peptides, homologs of arginine vasopressin and mammalian oxytocin that are widely implicated in the neural mechanisms of vertebrate social behavior, including specific actions of the morph on vocal neurophysiology in ensign. Also, a small population of POA–AH neurons that coexpress the neurotransmitter galanine and γ–aminobutyric acid appear to be implicated in these cuckolding processes: the results indicate that galanine neurons in mid–vessel fish likely modulate activity large–scale cerebral, including targeted effects on the vocal, sensory and neuroendocrine motor systems; they are unique from populations that do not express peptide and play a role in specific behaviors for men [9].

b) reproductive success is based on the coordination of social behavior, such as the defense of the territory, courtship, and mating. Species with extreme variation in reproductive tactics are useful models for identifying the neural mechanisms underlying the plasticity of social behavior. The lowland midshipman (Porichthys notatus) is a teleostal fish with two male reproductive morphs that follow widely divergent developmental trajectories and show alternative reproductive tactics (ART). Type I males defend territories, woo females and provide paternal care, but resort to the horned if they cannot maintain a territory. Type II males reproduce only through the horned. Using RNA sequencing, we proceeded to study the differential expression of the transcription in the Preoptic–Anterior Hypothalamus Area (POA–AH) of courting type I males, type I cuckolding males, and type II cuckolding males. Unexpectedly, the differential expression POA–AH was more strongly coupled with behavioral tactics than with morphs. This included a series of transcripts implicated in the hormonal regulation of vertebrate social behavior [10].

On the other hand, concerning the second hypothesis (psychological cause), referring to a post–traumatic stress adaptation [11] that takes place in the context of paraphilias [8] or maladaptive narcissism, drawing on psychodynamics and clinical psychology. On this theoretical basis, the causes of Troilism seem to be more coherent and compatible with the behavioral manifestations of the subjects who adhere to this vision of couple's life (compared to the advanced neurobiological hypotheses in the absence of targeted clinical studies) and therefore [12].

a) “Unconscious desire for fertility”, which would push the woman (in search of motherhood) and the man (in search of fatherhood, without taking on the responsibility of being the biological father) to seek sexual activity with third parties the satisfaction of this inner energy [13]. This hypothesis ceases when relationships are protected or there is no male ejaculation in the vagina. The possible unprotected relationship in the presence of the use of an oral contraceptive does not exclude this hypothesis, as the unconscious desire could be that of fertility but one of the two partners may not feel ready to take on this responsibility.

b) “Unconscious desire to improve the genetics of one’s family”, which would push the woman or man to seek the satisfaction of this inner energy in sexual activity with third parties, aware that their genetics could give birth to a child with problems health, even serious [14,15]. This hypothesis ceases when relationships are protected or there is no male ejaculation in the vagina or genetically there are no relevant clinical suspects. The possible unprotected relationship in the presence of the use of an oral contraceptive does not exclude this hypothesis, as the unconscious desire could be to give the unborn child the best possible health conditions.

c) “Unconscious desire to increase the couple’s chances of fertility” [16,17]. From an evolutionary point of view, some studies would connect, in a counter–intuitive way, the cuckold with an increase in fertilization capacity (a sort of battle for “genetic supremacy”). Although according to some researchers, the fear of not being able to sow one’s seed, or raising a child not really, is the basis of possessive behavior and sometimes violent jealousy, other studies would show how the sight of one or more men who had sex with a single woman increases sperm reactivity, making conception more likely as a result. The decision to use the semen of a donor without sexual intercourse (assisted fertilization) or to proceed with consensual sexual relations aimed at

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procreation are not in themselves hypotheses that fall within the object of study of this work.

d) “Unconscious desire to receive parental care from several males”, which would push the woman or man to seek satisfaction of this inner energy in sexual activity with third parties, for the unmovatied and irrational fear of not being up to par of the parental role [18,19]. This hypothesis ceases if the parents are already parents, while significant economic difficulties or intra-family relationship problems could play a dominant role.

e) “Unconscious desire to avoid betrayal or metabolize the one suffered”, which would push the partner to implement this relational modality to control and manage the emotional load deriving from a potential future betrayal or from post-traumatic adaptation deriving from an already experienced betrayal, especially if the person already has a paraphilic profile or an eccentric personality disorder (cluster B). These modalities are also manifested in adopting behaviors aimed at implementing sexual couple practices with a third or more people, to see one’s partner return to him / her, according to a ritualistic modality of cyclic and repeated choice [19]. This hypothesis is however not contemplated if the partners do not have paraphilic profiles, have not undergone traumatic stress deriving from a love or sentimental disappointment or a physical or mental betrayal, and still do not have an unstable or insecure sentimental relationship.

f) “Unconscious desire to be a victim of pain and psychological humiliation, according to a masochistic scheme”, which would push one of the two partners or both to undergo sexual relations with other people for the realization of their pleasure, in particular by requiring certain targeted behaviors to domination (“Do what I say”) or submission and humiliation (“I enjoy being considered a sexual object”), practices which in themselves are already considered paraphilic [19].

g) “Unconscious desire to live bisexual or homosexual drive experiences”, albeit in the larval state, for a sense of shame or inability to accept these drives on a conscious level [20].

Clinical contexts and relationship strategies

Both for cuckolding and troilism, including the hypotheses of open couples, polyamory and polygamy, the results of scientific research that examine a statistically significant sample are missing, about any psychopathologies related to these relational and sexual activities [1]. However, the data in our possession allow to make some substantial differences, related to the perceptive-reactive system [21], of the patient and his way of reacting concerning the environment around him [22]; in particular, one will have to ask whether [3];

a) Does the patient perceive his behavior or that of his partner as disturbing?

b) Does the patient experience the partner’s behavior or feel the urge to satisfy them?

c) Does the patient fail to have a satisfying relationship and sentimental life without the implementation of these sexual behaviors?

d) Does the patient perceive an accentuation of these behaviors?

e) The patient has suffered relational, working, emotional or sentimental problems as a result of the realization or ideation of these behaviors?

The positive affirmation of even just one of these questions should induce him to begin a targeted psychotherapy path, possibly with a cognitive-behavioral or strategic approach [23], to find answers to his doubts and clarify any information gaps. However, it should be borne in mind that certain pathological forms, even if considered as such, do not always require clinical intervention, as only the ego-dystonic forms (not in harmony with the surrounding environment) cause suffering and malaise, while the ego-syntonic forms, perhaps because they are experienced with a partner and a favorable context, they do not provoke those negative emotions and perceptions that characterize the request for therapeutic intervention [3].

If therefore the relationship with the partner is stable and this conduct does not cause problems, difficulties or discrepancies between the wishes of the individual members of the couple, then it is still important to follow simple rules of behavior, to positively continue these “particular” experiences of waist [3].

a) To share sexual experience adequately, promoting good, simple and linear communication, placing the emphasis on emotions, feelings, expectations, desires and drives, without fear of judgments or moral condemnations;

b) Focus attention on the playful aspects of sexual experience, putting in place a series of rules aimed at better managing the circumstances and situations between the two partners, with third parties and any couples;

c) Actively confront, before and during and after the sexual experience, to share emotions and sensations;

d) Practice active listening and prevent third parties from interfering with the couple’s relationship;

e) Limit in quantity the sexual game activities with third parties, in such a way that they do not become continuous or substitute experiences to the normal routine life;

f) Take time, making sure that the desires, expectations and drives of both are compatible, avoiding unwelcome or difficult to understand activities for one of the two partners (perhaps because the tastes are different);

g) Avoid impositions and obligations, unless agreed with conscience and will by both;
h) Avoid using guilt to facilitate any unwanted activities;

i) Limit the interference of these activities with normal daily personal and professional life;

j) Encourage any need for dialogue, even with a professional, who can help the couple better understand the real needs of both.

Conclusions

It is clear that the reasons that justify these behaviors are mainly attributable to psychological components and secondarily to neurobiological and hormonal components, even if the research published on this topic is not conclusive and is not conclusive. The subject of this work deserves further study, also from a clinical point of view.

In the future, research should focus on the following investigation points:

a. neurobiological studies able to determine the precise direction of the neural circuits underlying sentimental and sexual preferences, comparing the results with non-paraphilic subjects;

b. neurobiological studies able to determine the exact correlation between trollism and paraphilias;

c. neurobiological studies able to focus research on neuroendocrine and genetic factors capable of influencing sexual behavior.

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