

# To transmit genes without becoming mother: An evolutionary conflict behind denial of pregnancy

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## ABSTRACT

**Aim:** The etiology of pregnancy denial remains poorly understood. Neither necessary nor sufficient conditions can be synthesized from the risk factors identified from psychological analyses. In accordance with clinical observations, we aim to explain denial of pregnancy from an evolutionary conflict perspective.

**Methods:** Authors investigate evolutionary biology aspects and emphasize on the transition from solitary animal species to social species. The possibility of conflicts between primitive species-perpetuation forces and subjective social-identity forces are explored.

**Results:** As members of a social species, human beings have a dual, contradictory character of independent organisms but interdependent people. This results in evolutionary inherited conflicts that, with respect to women's reproduction, distinguish between primitive and social-identity issues: i) to transmit genes by giving birth and ii) to become mother. Authors explain denial of pregnancy as a *standby-in-tension* response to a conflicting attempt to transmit genes without becoming mother. It may thus be considered as temporarily adaptive response by postponing conflict resolution. This model, based on subjective internal appraisals, is compatible with a huge diversity of causative events as expected from the specificity of each woman's life course.

**Conclusions:** The proposed etiology is consistent with clinical observations and brings prior models into agreement. From a clinical practice perspective, the ability to explain denial of pregnancy rationally may favor understanding and acceptance by concerned women. Health professionals' information may also be facilitated and psychotherapeutic follow up may gain in efficiency with reduced recidivism. More generally, this evolutionary conflict approach provides a supplementary perspective to explore psychosomatic dysfunctions.

**Keywords:** Denial of pregnancy, Etiology, Evolutionary conflicts, *Standby-in-tension*, Gene transmission, Becoming mother.

## INTRODUCTION

Denial of pregnancy is among the human dysfunctions which best illustrate the mysteries of body-mind interactions. While the signs of pregnancy are usually obvious to the concerned woman as well as to her surroundings after several weeks or months, some women remain unaware of their gravid state during an abnormally long period of time; sometimes up to a totally unexpected delivery (Brezinka et al., 1994; Wessel et al., 2002). In these cases, physiological manifestations of pregnancy can be misinterpreted, significantly reduced or even absent (Brezinka et al., 1994; Milstein and Milstein, 1983; Milden et al., 1985; Spielvogel and Hohener, 1995; Bascom, 1977; Lee et al., 2006; Spinelli, 2010). Even labor and delivery pain can be minimized (Spinelli, 2010). The denial may also extend to the patient's social network and may continue through the postpartum period (Finnegan et al., 1982; Saunders, 1989).

Denial of pregnancy is an obvious cause for lack or absence of prenatal care and thus puts both fetus and mother at risk; especially in the case of sudden unattended deliveries in inappropriate places (Wessel et al., 2003; Jenkins et al., 2011; Chaulet et al., 2013). Denial of pregnancy has to be clearly distinguished from concealed pregnancies in which women are aware of their gravid state but consciously keep it secret for diverse psychological reasons. Miller classified denial of pregnancy within three subtypes: affective, psychotic and pervasive (Miller, 2003). The absence of pregnancy signs occurs in the pervasive case in

women with otherwise intact reality testing (Spielvogel and Hohener, 1995; Alby et al., 2014).

Denial of pregnancy remains diversely acknowledged by health professionals (Janati Idrissi et al., 2014) despite it was popularized by judicial affairs of neonaticide. The relationship between denial of pregnancy and neonaticide is however highly asymmetrical. Whereas denial of pregnancy is a common accompaniment of neonaticide (Lee et al., 2006; Green and Manohar, 1990), neonaticide remains an exceptional outcome of denial of pregnancy (Brezinka et al., 1994; Navarro et al., 2011; Seigneurie and Limosin, 2012; Dayan and Bernard, 2013).

The etiology of denial of pregnancy remains mysterious even if, with the exception of Del Giudice (2007), all authors converge to an unconscious defense mechanism involving some kind of psychological processes. Forty years ago, Uddenberg and Nilsson (1975) suggested from a longitudinal study that denial of pregnancy serves to hide pregnancy to the woman's awareness because of internal conflicts. Since that time a significant amount of clinical data has been accumulated from systematic surveys and case reports (Jenkins et al., 2011). A list of risk factors has thus been identified and the most common causes claimed for non-psychotic denials of pregnancy include: low socio-educational status (Dayan and Bernard, 2013; Struye et al., 2013); lack of social support (Dayan and Bernard, 2013) the woman's own maternal deprivation (Spielvogel and Hohener, 1995); acute or chronic psychosocial stress (Brezinka et al., 1994); a history of emotional, physical or sexual abuse in childhood (Dayan and Bernard, 2013); conflicting or repressed sexuality (Bonnet, 1993; Spielvogel and Hohener, 1995; Friedman et al., 2007); rejection of the fetus (Spielvogel and Hohener, 1995); anger toward the baby's father (Spielvogel and Hohener, 1995); fear of abandonment (Friedman et al., 2007); memory or anticipation of custody loss (Miller, 2003; Friedman et al., 2007). Denial was also observed in women that respond to none of these conditions (Jenkins et al., 2011). This diversity of bibliographic accounts supports the statements by Wessel et al. (2007): "Sociodemographic maternal parameters describe, to a certain extent, some risk factor, which, however, are insufficient for the identification of the majority of women with pregnancy denial. Rather, our findings highlight the heterogeneity of affected women, and clearly show that we are unable to describe an 'unambiguous' typology of a pregnancy denier".

Del Giudice (2007) opposes well-established evolutionary biology knowledge to these psychological explanations of denial of pregnancy. A major argument is that pregnancy is not a mother-driven process but involves in-depth mother-fetus interactions subject to parent-offspring conflicts (Trivers, 1974). Del Giudice thus addresses denial of pregnancy from a parent-offspring conflict perspective and proposes three explanatory hypotheses: *i*) nonadaptive byproduct of conflict resolution; *ii*) missed abortion and *iii*) forced cooperation in a threatening environment.

Despite a worthwhile expansion to evolutionary biology, two major issues with Del Giudice's work can be noted: *i*) He considers the mother as a non-conflicting entity. Only rational social costs are considered and human subjectivity is not taken into account. *ii*) The evolutionary approach seems unable to explain some aspects of denial of pregnancy; especially changes triggered by denial disclosure (Wessel and Endrikat, 2005). Indeed the announcement of her pregnancy to a woman denying a six, seven or eight month pregnancy usually triggers drastic changes: sudden appearance of abdominal swelling, weight gain, perception of fetal movements, breast enlargement (Bascom, 1977; Dayan and Bernard, 2013). Sandoz (2011) provided an in-depth analysis of the sudden transformation of the woman's body shape triggered by pregnancy announcement. Such clinical observations demonstrate the ability of the woman's body to function normally and that denial results therefore from a "software" problem. Psychological explanations of such sudden changes in the woman's shape and perceptions are much more plausible than evolutionary ones.

Denial of pregnancy was barely investigated as an adaptation attempt to some internal conflict as suggested by Uddenberg. Denial of pregnancy was hypothesized as a coherent response to paradoxical realities with the subconscious aim to hide the gravid state to the woman's awareness (Sandoz, 2011). This systemic approach was recently rooted in evolutionary biology (Sandoz, 2015b) but a precise formulation of the attendant conflict remains to be elucidated. The proposed paper addresses this issue by describing denial of pregnancy as a temporarily adaptive, *standby-in-tension* response to the unachievable need to transit genes without becoming mother.

## SOLITARY VERSUS SOCIAL EVOLUTIONARY CONFLICTS IN HUMANS

The human species is a recent result of the billion year evolution of life. Along this slow process, the living structures that appeared first constituted raw material favoring the emergence of new creatures

of higher complexity; among which the best adapted to current life conditions were favored by natural selection. As Jacob (1977) says: *"Novelty comes from previously unseen association of old material. To create is to recombine"*. The human species is no exception as confirmed by the composition of the human genome (Griffiths et al., 2001).

The evolutionary process of creating new living systems from already existing constituents generates conflicts since previously independent structures become dependent on each other despite potentially divergent interests. Such conflicts have been explored for a long time and exist at different levels of organization; in humans included. As members of a social species that evolved from solitary animal species, human beings are at once social group members and distant descendants of solitary animal ancestors. The social and solitary characters are antagonist and this results in an evolutionary-inherited source of internal conflicts. We are indeed independent organisms but interdependent people. At every life instant, our single brain has to elect the optimal regulation commands to best fulfill the contradictory needs of our organism and of our person. Let us investigate how such evolutionary-inherited conflicts may appear in humans by considering human functioning with respect to the solitary animal stage of evolution.

Solitary animals (amphibians, reptiles) are independent beings for which the whole universe simplifies to a duet: their organism and the environment. They do not care about their fellows. Their descendants are autonomous at birth and sexual partners stand as rewarding elements of environment rather than connected fellows. Solitary animals can be identified to their organism and their small-sized central nervous system controls their whole functioning in the best species proliferation interests: individual's survival, reproduction and well-being. The inheritance from solitary animals is important to human metabolism since many elementary processes for cell, tissue and organism physiology were already acquired at this stage of evolution.

The human species involves a social level of organization that does not exist in solitary animals. Human beings are interdependent on their fellows and the system in which they live is made of at least three elements: themselves, fellows and environment. Interactions with fellows are especially important in the individual's elaboration of his social identity; i.e. subjective representations of himself as a person. The conscious perception of himself as a person results from a long developmental process that occurs during childhood and requires interactions with caregivers and fellows (Mahler et al., 1975). During this socioculturally-influenced process, each individual elaborates subjective representations of what he can expect from others and how to best answer their expectations (Fonagy et al., 2007). The resulting social identity is embedded in the individual brain's neural networks and involves a personalized set of rights and duties toward himself and his fellows (Swain et al., 2007).

Because of the social organization level, human beings can not be identified to their organism anymore. They also exist as human people hosted in their organism but not limited to it. As solitary animals, human beings function to their best individual interests. The latter may however differ from their organism's best interests to result instead from an internal balance between actual physiological needs and subjective social-identity needs. The human brain is thus exposed to internal conflicts opposing primitive forces turned towards organism's interests and social forces turned towards subjective rewards to the person. Let us address denial of pregnancy from this evolutionary-inherited conflict perspective.

## EVOLUTIONARY CONFLICT PERSPECTIVE ON DENIAL OF PREGNANCY

In accordance with the former distinction between the solitary animal and social stages of evolution, reproduction is related to diverse issues depending on the perspective chosen. From a primitive, solitary animal point of view, reproduction allows the transmission of genes to the next generation and thus contributes to the perpetuation of the species. At this level, reproduction responds to a natural instinct that expresses in adults as soon as allowed by environmental conditions, especially in terms of safety and available resources.

In humans, reproduction involves an additional social issue since it transforms the woman into a mother, either for the first time or once more. This shift in the social status of the woman assumes a significant updating of her own social identity. Bayle (2009) uses the term of *psychic gestation* to qualify this necessary identity transformation in the future woman. Uddenberg and Nilsson (1975) already pointed the para-natal period as: *"a period of maturational crisis during which the woman must integrate past and present experiences in order to adapt to her new tasks as a mother"*. To become a mother can indeed be challenging to the woman's psyche since this change involves major implications; notably to acknowledge

active sexuality and to accept a mothering role for many years in accordance with her own representations of the mother's duties.

This necessary internal transformation may be disturbed or even blocked by woman's traumatic memories related to these social aspects of motherhood. For instance, the woman's own maternal deprivation may have resulted in the association of mother-infant relationship with suffering for the child as she experienced herself. As a result, the woman's psychological ability to become mother may be threatened by the anticipation of suffering for her own child. Such psychological considerations are however related to the social character of human beings and would be irrelevant to our solitary animal ancestors. Therefore the woman's instinct to transmit genes by giving birth to a new individual is not necessarily affected by such traumatic memories about social experiences. The woman's brain may thus be exposed to contradictory forces: *i*) primitive ones aimed to transmit genes to contribute to species perpetuation and *ii*) social ones prohibiting motherhood to prevent suffering for herself or for her child. In such conditions, the evolutionary conflict experienced by the woman's brain can be formulated as the unachievable need to transmit genes without becoming mother.

The possibility of such a reproductive conflict was inherited from evolution, particularly from the transition from solitary-animal species to social species that gave to human beings a dual character of independent organisms but interdependent people. The conflicting need to transmit genes without becoming mother accepts two rational outcomes: *i*) a social option would trigger abortion with the solitary cost of a missed reproductive opportunity whereas *ii*) a solitary option would infringe the subjective pregnancy ban and make the gravid state conscious with the social cost of psychological disturbances. Both options would result in the woman's normal functioning and fit with current knowledge: early abortion rate and late awareness of pregnancy.

Let us now consider the deadlock configuration in which neither the solitary nor the social costs are acceptable to the pregnant woman's psyche. In such an inextricable situation, the brain remains unable to solve the conflict despite the burden produced by the conflicting forces. The value of denial of pregnancy becomes obvious in this context since it provides an alternate way to comply with the incompatible demands. In this perspective, denial of pregnancy results from a subconscious holding program aimed to gain some extra-time to solve the conflict. The etiology of denial of pregnancy is then elucidated as: A *standby-in-tension* response to the unachievable need to transmit genes without becoming mother.

It must be noticed that during the early weeks of pregnancy the physiological cost of denial of pregnancy is low. Therefore, within a timescale of a few days, denial of pregnancy can be seen as adaptive. The actual problem appears when denial of pregnancy extends over several weeks or months because of the persistence of the intrapersonal conflict without the emergence of a more appropriate outcome. In such protracted circumstances, the physiological cost of denial of pregnancy increases day after day, especially in the pervasive case that involves the reduction or suppression of normal pregnancy symptoms. As suggested by Sandoz, such a conspicuous absence of pregnancy signs results from the brain's ability to fulfill the imperative need to control pregnancy beyond the pregnant woman's awareness (Sandoz, 2011, 2015b). The existence of such a well-organized "*software*" program is consistent with diverse bibliographic accounts (Uddenberg and Nilsson, 1975; Milden et al., 1985; Finnegan et al., 1982; Stotland and Stotland, 1998) and may be considered similar to a conversion disorder.

Figure 1 depicts the proposed etiology of denial of pregnancy by means of a twisted arrow representing the psychic tension raised by the internal mismatch between: *i*) the primitive need to transmit genes to a new individual and *ii*) the subjective inability to become mother. The psychic tension is released at the time of denial disclosure that produces the sudden alignment of the awareness of pregnancy (or future motherhood) with the objective reality. In some cases however, even the evidence of the newborn remains insufficient to break the subjective ban of motherhood and denial continues through the postpartum period (Finnegan et al., 1982; Saunders, 1989).

The proposed etiology of denial of pregnancy fits with clinical observations of cases reported in literature with sufficient details. Let us consider for instance the clinical case reported by Green and Manohar (1990). The authors describe their patient as follows: "*The patient, a 23-years-old single woman, was the only daughter in a family of five brothers. Her family belonged to a strict protestant group who live in socially isolated communities in North America; they follow a traditional way of life and avoid contemporary ways of living, which they regard as sinful. Her father, a man much committed to his religious ideas, was described by the patient as of violent temperament. Discipline throughout her childhood was extremely harsh and she was subjected to severe beatings for minor misdemeanors.*" This



**Figure 1.** Schematic representation of the evolutionary-inherited conflict associated to denial of pregnancy: to transmit genes to a new individual without becoming mother.

description tells clearly that by growing up in such a sociocultural environment, the patient elaborated a personalized set of rights and duties toward herself and fellows that is very unlikely to permit her to give birth outside of marriage. As a social member then, her ongoing pregnancy may represent an unacceptable threat to her social identity because of anticipation of familial anger and violence. This subjective and subconscious appraisal of her own pregnancy may enter into conflict with her primitive need to transmit genes to a new individual by giving birth. Such a procreation instinct is supposed to express naturally in a young adult woman whose most elementary needs are satisfied. The internal conflict experienced by such a woman may favor ambiguous or contradictory behaviors, for instance to have sex without contraception. Once pregnant, the opposite forces may prevent both pregnancy announcement and abortion and thus lock the conflict in stalemate despite the internal tension triggered. It is then obvious that as long as it remains impossible to solve the deadlock, denial of pregnancy provides a *standby-in-tension* response allowing to postpone conflict resolution. We note however that: *i)* As actually observed in the pervasive subtype, the internal conflict must be strong enough to take control over the woman physiology for suppressing actively the normal signs of pregnancy in order to prevent the woman to become aware of her gravid state. *ii)* Such an interim solution cannot last forever and will necessarily fail at the time of delivery. The proposed evolutionary conflict model is consistent with the interpretation by Green and Manohar: *"From her religious cultural background to be pregnant out of wedlock was considered a very wicked sin. To have obtain abortion would have been considered even worse. Although the patient had left home in an attempt to set up an independent lifestyle, it was clear that her parent's attitudes continued to have a marked hold over her"*. Our model provides however an enlarged perspective by expressing the evolutionary conflict behind denial of pregnancy in an abstract form compatible with the specificities of every woman's life course.

## DISCUSSION

The diversity of clinical observations can be explained by means of the proposed etiology of denial of pregnancy that involves a subconscious program aimed to hide the pregnancy to the woman's awareness. We also note that the most common causes claimed for non-psychotic denial of pregnancy as listed in introduction are likely to reduce the woman's ability to imagine herself as a mother through various ways. The cause-to-effect relationships depend however on each woman's appraisal of her own life experience and similar facts may affect different women differently. These causes thus constitute neither necessary nor sufficient conditions as stated by Wessel. The explanation proposed here presents the advantage of laying on a woman's internal conflict rather than on external facts or conditions. This particularity makes the proposed model compatible with the diversity of causative events reported in literature. In this way, it brings previous models in agreement by synthesizing a long list of risk factors into a single effect on the woman's psyche.

The proposed model allows del Giudice's explanations and hypotheses to be updated as follows: *i)* Del Giudice's first hypothesis is that denial of pregnancy is a nonadaptive byproduct of conflict resolution. In the proposed view, the internal conflict remains unresolved and constitutes a continuing source of internal tension. Secondly, from the subjective perspective of the woman's subconscious mind, denial of pregnancy can be seen temporarily as adaptive, especially during the early weeks of pregnancy. *ii)* Del Giudice's second hypothesis is that denial of pregnancy results from missed abortion. In our view, abortion is not missed but forbidden by the primitive need to transmit genes. *iii)* Del Giudice's third



hypothesis is that denial of pregnancy results from forced cooperation in a threatening environment. We fully agree with this proposal and fetus cooperation may indeed be necessary to hide pregnancy to the mother's awareness, especially in the pervasive case.

Achieving a satisfactory etiology of denial of pregnancy should help in defining what can be expected or done from the perspectives of prevention, clinical practice and psychotherapy. On this point, a first observation confirms Wessel's statement that no unambiguous pregnancy denial profile can be elaborated from observable risk factors only. Instead denial of pregnancy results from a personalized combination of causative events or conditions with the individual's sensitivity. As Sapolsky (2004) says: "*It's not just the external reality; it's the meaning you attach to it*". The obtaining of a clear, rational and understandable explanation of denial of pregnancy may however be very beneficial to clinical practice in various ways: *i)* The information of both health professionals and lay public will be made easier; *ii)* By allowing better understanding of their condition, concerned women may accept it more easily and be less likely to feel guilty; *iii)* Therapeutic follow-ups may gain in efficiency by conducting interviews towards the identification of the personalized causes for conflicting motherhood.

Finally, the elucidation of denial of pregnancy may also be very useful for forensic purposes, i.e. the proper understanding of the psychological state and functioning of women who fail to provide adequate care to their own newborn after experiencing an unexpected delivery. The sudden tension release triggered by denial disclosure at time of an unexpected delivery may indeed explain some irrational behaviors in otherwise normal reality testing women.

As noted previously by Mildén, Beier and Kenner, pseudocyesis and denial of pregnancy can be seen as inverse dysfunctions (Mildén et al., 1985; Beier et al., 2006; Kenner and Nicolson, 2015). The evolutionary conflict perspective developed here for denial of pregnancy could apply to pseudocyesis by considering conflicting forces directed in opposite directions; i.e. the urgent need to become mother in absence actual pregnancy (Sandoz, 2016). In both syndromes, subconscious representations seem to be strong enough to deviate complex physiological processes and thus to induce "*software-caused*" dysfunctions. The complete elucidation of the mind-body mechanisms responsible for these women's dysfunctions may provide precious insights into diverse psychosomatic issues (Sandoz, 2015a).

### Declaration of interest statement

Author declare that they have no competing interests.


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