

Unveiling Sexes, Producing Genders: the promotion of scientific discoveries of oxytocin *

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Abstract

Given the relationship between gender and science in the broad context of medicalization of male and female sexuality, this article discusses the promotion of oxytocin as a new technological artifact that is capable of commanding explanations of both supposed biological differences between the sexes and expectations for individual betterment. The research focuses on the dissemination of scientific discoveries about oxytocin in different media vehicles in Brazil. It presents how the celebration of oxytocin as a central component of a biochemistry of love is part of a broader process of fabricating two distinct and complementary hormonal bodies, which are at the service of reproduction.

Keywords: Sexuality, Gender, Medications, Oxytocin, Hormones.

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That loving feeling is now for sale

In capsule form, a nasal spray version, sublingual drops or a perfume, love is now for sale, or at least chemical substances responsible for awakening the passion within us. As neuroscientist Larry Young has explained, a love affair is completely chemical and among the chemical substances released by our brain when we fall in love are oxytocin and pheromone. And they are exactly what is found in pharmacies in the United States and in perfumeries in Paris and São Paulo (*Glamour*, February 2013).

“The hormone that makes love and relationship possible”
(slogan for the medication *Oxytocin Factor*. Site *Oxytocin Factor*
<https://www.oxytocinfactor.co/> - accessed on 19/02/2016)

At first sight these passages may appear as mere euphoric promotional references to another miracle drug. Nevertheless, we will argue that beyond this, they are inserted in a complex network of associations of heterogeneous elements in which concepts about science and gender are in dispute. In this article we present, within a context of a broader medicalization of female and male sexuality, the rise of oxytocin as the “hormone of the hour”, which is able to lead explanations about the supposed biological differences between the sexes and expectations for individual improvement. The investigation focuses on public discourses about oxytocin promoted in Brazil in different communication media such as magazines, newspapers, news portals and sites of medical clinics, doctors, pharmacies, laboratories and others.

In these various sources, the emphasis on the benefits of the hormone is supported by a quite broad concept of health as a synonym for “maximization” or “intensification” of pleasure, particularly sexual, but also of physical and emotional wellbeing. Oxytocin is regularly identified as the love and pleasure hormone,

which reveals much of the symbolic and material investment in this substance.¹

The hormone is commonly related to promotion of bonding or capacity to love, whether between mothers and their newborn children or between couples, in this case, notably heterosexuals. A close proximity is observed between the terms “pleasure” and “love”, which suggests that the capacity to love between couples is understood to result solely and closely to a physiology of pleasure guaranteed by a surge of oxytocin in the bodies of men and women in an intimate relationship, with the activation of certain regions of the brain. Said in another way, the discourses studied reveal a type of substantialization of pleasure and of love triggered by an isolated chemical component, in such a way that they could be reduced, embodied and adapted to the format of a molecule.

In addition, oxytocin reigns supreme as the molecule that determines, explains and regulates a series of other “human” behaviors and emotions. In a clear attempt to extend its benefits and its range of action “beyond” the formation of a loving tie between mothers and their babies, a broad range of advantages of oxytocin are promoted in the news. Headlines such as “Much More than a Love Hormone” and “Much More than a Pleasure Hormone”, express the efforts to expand the domain of its agency “far beyond” sexual pleasure.

The broad spectrum of benefits of oxytocin promises the improvement of a wide variety of emotional, social, sexual and physical capacities. The emotional and social aspects range from the regulation and improvement of moods such as anxiety, irritability, stress and post-partum depression; to an increased sense of contentment, calm, security/self-confidence in a relationship with a partner, self-esteem, recognition of the physiognomy of known people and even the promotion of

¹ Oxytocin is a hormone produced in the hypothalamus that was isolated and synthesized for the first time in 1952 by Vincent du Vigneaud, of the *Weill Cornell Medical College* in New York, for which he was awarded the Nobel Prize in Chemistry in 1955.

kindness between people. Among the physical symptoms suggested, we highlight: promotion of expression of mother's milk, contractions and expulsion of a baby in childbirth, expulsion of the placenta, pain relief, acceleration of scarring of wounded skin, improvement in sleep disturbances, increased arterial vasodilation (improved blood circulation, prevention of ischemia and high blood pressure), increased muscle mass, acceleration and intensification of orgasms, improved sexual desire, help in weight loss, rejuvenation, increased production of anabolic hormones (testosterone and growth hormone) and a decrease in catabolic hormones, such as cortisol (the stress hormone), responsible for reduction of muscle mass.

Judging by the extensive list of benefits associated to the use of oxytocin, we see that it is presented as having promise for resolving various problems that have been indicated as responsible for contemporary illness and suffering. Note that on this list, in addition to prevention and treatment of possible disease, we find an opportunity to improve conditions that, in principle, can be considered as part of the normal course of life but that have been medicalized, as many studies have shown (Rosenberg, 2002; Martin, 2006; 2007; Conrad, 2007; Rose, 2007; Clarke et al., 2010; Dumit, 2012; Marshall, 2010; Williams et al., 2011).

Based on a theoretical perspective of social studies of the sciences and of gender studies, we show that the celebration of oxytocin as a hormone of "pleasure" and "of love" brings as a background the broader process of fabrication of a female and male hormonal body. The increasing role that hormones have in explaining the functioning of bodies, behaviors and emotions, not only in specialized medical literature, but in the media in general, reveal how the hegemony of the hormonal body appears to eclipse other explanatory models of biomedicine. In this sense, oxytocin emerges as an additional actor within the logic of the hormonal empire (Rohden, 2008).

The emergence in the twentieth century of the "hormonal body" as a privileged marker of distinction between the sexes, follows a long history marked by medicalization of the female

body, considering, more precisely, the concern for the “good functioning” of its reproductive processes, which persists until today, even if based on different perspectives. The constitution, during the nineteenth century, of gynecology as the “science of women”, is quite illustrative of this concern, focusing on the uterus, and later, the ovaries, simultaneously, as the essence and source of female disturbances. The history of the rise of endocrinology as a medical specialty in the twentieth century and all of the investment around the substances secreted by the ovaries until the manufacturing of the contraceptive pill, is also permeated by the centrality of the female body as an object of knowledge and intervention (Oudshoorn, 1994; Roberts, 2007; Rohden 2009).

Since the late twentieth century, there has been an increasingly greater concern with the medicalization of male sexuality. The advent of Viagra reveals significant changes in the configuration of masculinity as a field that is open to medicalization. We will see how changes in perspectives about male and female sexual desire are intimately related. It is precisely at this moment that the discourses about oxytocin emerge with great strength. In relation to sexual pleasure, oxytocin is also promoted to the male public as a new medication. For this reason, the news about oxytocin allows reflecting on how gender differences are reproduced in the narratives about the hormonal body and the sexuality of men and women. It involves thinking, from a gender perspective, about the logic that guides the hormonal economy of female and male bodies in the most recent discourses about oxytocin and its relationship with pleasure.

Gender and science in focus: theoretical and methodological directions

The theoretical-methodological perspective of this article is based on a notion of coproduction, that is of the perception that the production of knowledge and its various uses are inextricably related to the world views and political pretensions of the society in which they are inserted. As Jasanoff (2004) affirms, the modes through which we gain knowledge of the world and create its

representations are deeply associated to our ethical options and to ways by which we choose to live in this world. Scientific knowledge and technology are social products and establish practices, identities, norms, conventions, discourses, instruments and institutions. As many feminist authors have shown, the insistent distinctions between nature and culture or science and values must be problematized in virtue of their association with the hierarchies of gender, among other social asymmetries (Haraway, 1995; Fausto-Sterling, 1992, 2002).²

The social phenomenon, however, are understood here as complex and heterogeneous networks, constituted by agents or mediators that engage in events based on distinct positions and interests.³ The production of new resources for intervention, of different types, requires investigating processes, interests and agents and how they are mobilized. From this perspective, it is important to emphasize ideas, justifications and values that compose the narratives produced, as in the case studied here, around oxytocin, which are as relevant as other types of resources used. It should be added that in this expanded notion of resources for intervention, we include not only specific technologies that already exist in the market but also the public promotion of concepts, or what we can call ideational or cultural artifacts, which make possible the existence of new productions or associations.

This concern relates to an important discussion not only for studies of gender, sexuality and health, but also for investigations of science and technology. It involves a more general question about the production of new technological artifacts and their relationship with identity and subjective dimensions. The way that different technoscientific developments, from diagnostics to

² In addition to these classic works it is important to mention the debate about “feminist neomaterialism”, which tries to go deeper in the interconnection or the impossibility of distinction between what has been defined as natural and social (Wilson, 2004; Roberts, 2007; Hird, 2009; Kirby; Wilson, 2011; Hird; Roberts, 2011).

³ According to the perspective adopted by Latour (1987; 2005), Star and Griesemer (1989), Callon (1985), Law (1987) and Callon & Law (1982).

medications, are articulated with social values and identity markers in our society, has still to be better explored.

An exemplary reference in this direction has been the work of Oudshoorn (1994, 2003, 2004; Oudshoorn and Pinch, 2003). She affirms that studies involving gender and technology have shown how technologies exercise an outstanding role by helping to stabilize or destabilize gender conventions. Inspired by Butler's (1993) concept of gender as a ritualized repetition of conventions, Oudshoorn (2004) indicates that technologies are fundamental in this process, because they create new gender performances or reinforce existing ones. In the case she studied, for example, the idea that women are responsible for contraception became the "dominant cultural narrative materialized in contraceptive technologies, in social movements, and the gender identities of women and men" (Oudshoorn, 2004:353).

In this sense, technologies,

do not reflect essentialist properties of bodies, but rather, they are the materialized results of negotiations, selection processes, contingencies, and technological choices, embodying socially and culturally constituted values and practices (Oudshoorn, 2004:352).

Oudshoorn (2004) also maintains that the social studies of technology and even the use of the concept of socio-technical networks have not given adequate attention to cultural norms and values that organize society and shape people's relations and experiences, and are too restricted to the merely social role. For this reason the dimension of gender, for instance, has not been properly considered in technological innovation processes. According to Oudshoorn,

to include the cultural dimensions of technological innovation is not only to conceptualize technology in terms of networks of techniques, knowledge, institutions, experts, and social groups but also to include the relationships

between technologies and the subject identities of users
(Oudshoorn, 2004:354).⁴

This article focuses on the articulation between what is presented as a new scientific discovery or a new technological possibility and the production of markers of gender and sexuality. Thus, like Oudshoorn (2004), we follow Butler's perspective (1993, 2003, 2005), especially her understanding of gender as something constantly performed based on a heterosexual matrix or hegemony that tries to establish an hierarchy between men and women by means of the biologicalization of sexual difference and insistence on an inevitability of reproduction. Sex, gender and desire, according to this line, are thought of as "effects of a specific formation" (Butler, 2003:9). Investigations should also comprehend identity categories as "*effects* of institutions, practices and discourses whose points of origin are multiple and diffuse" (Butler, 2003:9, emphasis in the original) in a situation in which phalocentrism and compulsory heterosexuality are defined as central references. In pragmatic terms, it is important to remember that it is only possible to access them through the performativity of gender, which is defined by "reiterative and citational practice through which discourse produces the effects that it names" (Butler, 1999:154).

For the case analyzed here, we begin with the principle that the discourses about oxytocin and other hormones, such as testosterone, are part of this arsenal for the reiteration of gender in contemporaneous construction. The particular interest in this type of object focuses on how the valorization of science and new possibilities for technological consumption, corporal transformation and improvement are disseminated. This involves a focus on the interconnection between gender and science that should be studied in both daily interactions and in the way the sciences influence daily life, as has been defined by Fonseca et al (2012).

⁴ Rose also considers the limits or the lack of attention of Actor Network Theory (ANT) to the consideration of the forms of subjectivity (Spink, 2010).

Nevertheless, more than the effective use of a new medication, the object of this study is the promotion of ideas – to use Fleck's (2010) terminology, pre-scientific proto-ideas – or those from a group of associations that help to create expectations and therefore make possible the existence of a new recourse for intervention. It thus involves identifying the mobilization of values, norms, prescriptions or ideas that, in this specific scenario, are completely overlapped by gender. In this sense, what can be defined as the instable and precarious character of the information presented becomes precisely the target of this analysis. We believe that the particularity and relevance of the discussion proposed here resides in the attempts to create coherence and interest in something that the discourses cataloged always presented as new.

The choice of oxytocin as a focus is related with its more recent entrance into the production of artifacts, including diagnoses and medications, aimed at the “treatment” of so-called male and female sexual dysfunctions, expressing one more chapter in the long process of medicalization of sexuality, which has been strongly marked by gender differences (Fishman, 2004; Rohden, 2009; Russo et al, 2013). In the wake of the repercussion of the medications for erectile dysfunction, such as Viagra, which was released in 1998, we have witnessed an insistent search for something that would have analogous sales success among women. The most recent attempt is the drug flibanserin, approved in the United States in 2015 and which claims to be the new “*pink* Viagra”. Hormones have had a fundamental role in this race, especially testosterone. About one decade after the Viagra “revolution”, many pharmaceutical laboratories have focused on ways to promote and sell testosterone as a resource that could increase desire in both men and in women. This new investment is related to a certain recognition of the limits of satisfaction and stabilization in the sales of medications for erection, in the case of men. And considering that Viagra was not approved for use to improve “arousal disorder” in women, the reorientation for the treatment of “hypoactive sexual desire disorder”. Moreover, for both men and women, testosterone is promoted as a source of

“improvement” not only of desire but also for preventing and treating many generic conditions such as stress, fatigue, lack of energy, excess weight, loss of muscle mass or even aging (Rohden, 2009, 2011).

Therefore, it is curious that testosterone, presented as “the male hormone” par excellence, and as a promise for resolving nearly all afflictions, comes to share attention with oxytocin, which was traditionally associated to feminine physiological processes, in the context of giving birth and breastfeeding. This initial finding is what called our attention and motivated a systematic search of the references to the “hormone of the hour”.

The study was conducted on various fronts that could be grouped into two broad lines. The first refers to wide circulation print media in Brazil and the second to the Internet. In the first case, after an exploratory investigation of various newspapers and magazines, the decision was made to focus on *Veja*, the highest circulating weekly magazine in Brazil and which is dedicated to news and general affairs; the magazine *Super Interessante*, focused on scientific advances in general; and the periodical *Viver, Mente e Cérebro*, which publishes articles more directly associated to scientific understanding of the body and mind. In the case of *Veja*, we had a database from which we could catalog information from 1990 to 2015. For *Super Interessante*, we collected articles from 1993 to 2015. For *Viver, Mente e Cérebro* we analyzed articles from 2004 to 2015. In terms of broad research on the Internet, a Google search was conducted using the category “ocitocina/oxitocina” [oxytocin], associated to “hormônio” [hormone] and “prazer” [pleasure]. In this way, we reached news portals and sites of publications, sites of aesthetic and neurological clinics, personal blogs of doctors, sites of pharmacies, blogs about weight-training and fitness as well as various blogs about issues such as sexuality and relationships. This article used a total of 68 articles.

These various sources, which in principle can be considered to be quite different, reveal similarities if we recognize that they have many common points. We suggest that these articles can be

grouped around production of a field of “scientific self-help”, in which science, journalism, promotion and self-help combine in different communication vehicles. Far from simply promoting new discoveries, it involves, above all, the promotion of new norms for guiding behavior based on arguments presented as scientific. One of the factors involved in this process is the conformation of a type of moral obligation to always be informed about new available resources and to be able to use them, in the name of somewhat generic values such as satisfaction, well-being and quality of life, which are commonly expressed in numeric references or in graphs, such as hormonal rates, for example (Rohden, 2012).

It is necessary to add that we looked for information published in Brazil because our interest is in investigating in what way this group of narratives is articulated with the production of certain local effects or engagements. Even if the news articles often refer to the international context, the study focused on perceiving how this context is rearticulated in Brazilian sites and publications. A particular concern is related to the fact that the communication outlets and sites analyzed here are often used as up-to-date references by students, teachers and even by the general public, without the proper critical appropriation, to which we would like to make a contribution.

About the knowledge produced within this network, we highlight the crucial role of constant references by many of the sites and blogs to clinical studies and scientific research, particularly international ones, to legitimate their arguments. In the same way, affirmations from doctors of different medical specialties, such as gynecologists, obstetricians, neurologists, physiologists, endocrinologists, neuroendocrinologists and others are also common. On this basis is constructed an aura of science and certainty about the effectiveness of the action of oxytocin in terms of the benefits proposed. We call attention to this strategy of reporting on “scientific” studies, from one or another research institutions or universities, as a condition for the construction of oxytocin as a scientific fact, which appears to impede questioning the conclusions of the studies.

Science explains the biochemistry of love

By compiling the material analyzed we can argue that there is strong concordance among the various sources studied, particularly concerning the general reaffirmations of the gender differences in terms of biological determinations. It is possible to identify the production of two distinct and complementary hormonal bodies upon which oxytocin acts differently. However, what stands out is that in addition to these continuities we also notice certain transformations over the years. The most central rhetoric, which has been a constant presence since the 1990s until today, presents oxytocin as a hormone of pleasure or love. It was first associated with processes related to maternity and bonding and even related to the supposed consequences of this for the procreation of the species. The explanation of the pleasure generated by the balanced functioning of the cerebral-hormonal system is based on an evolutionary biological perspective and is expressed in frequent observations about the role of oxytocin in guaranteeing the maintenance of the human species. As the statement by neuroendocrinologist Sue Carter suggests, presented in an article in the magazine *Super Interessante* about the loving feeling guaranteed by the action of oxytocin: “although it may not appear romantic, love is a contrivance of nature to keep the human species procreating” (Soalheiro, *Super Interessante*, October 2003).

According to this logic, taken to the extreme consequences by the news articles, if not for the hormonal mechanism of production of satisfaction, also known as the “gratification system”, both in the sexual relationships between men and women, and in those involving mothers and babies, the conditions for reproduction and raising children, in the period of absolute dependence on the parents, would be unviable. We suggest that supporting claims about action of the hormone with evolutionary arguments favors approximating sexuality and biological reproduction as inter-related domains.

Alluding to research with animals and humans, it is affirmed that the peaking of oxytocin levels during sexual relations is responsible for the intensification of the female orgasm to “stratospheric levels” or the “production of “multiple orgasms”. As illustrated in the following description, taken from the blog “Esquentando o Clima” [freely, Getting in the Mood] from the magazine *Glamour*, which addresses issues such as relationships, love, pleasure and sex:

During orgasm, the levels of male oxytocin grow five-fold, but this is nothing compared to levels of female oxytocin. Women need more oxytocin, if they want to attain orgasm and during the peak of sexual arousal the levels of oxytocin reach stratospheric levels. If this point is reached and the women’s brain is inundated with oxytocin, she is certainly capable of having multiple orgasms (*Glamour*, March 2013).

The discourses on the blogs, news sites and publications in general repeat the explanations about the articulated functioning between the brain and hormones during sexual relations. The blog “Me cuidando” [Personal Care], by the pharmacy *DayPharma*, about health, beauty and quality of life, describes the importance of turning off the neocortex for the production of orgasms during sexual relations, as we can see below:

The most interesting fact was the large deactivation of portions of the brain during orgasm, mainly the areas related to fear. In women there was a total deactivation of this area while in men it decreased significantly, but is not completely deactivated (*Me Cuidando*, February 2012).

One aspect quite present in the content of news about oxytocin, along with the exclusivity of multiple orgasms to women, concerns this difference in the functioning of the neocortex, according to which, while neocortical deactivation is complete in women, it is not for men. Although the reasons for this difference are not clarified, the articles allows us to glimpse a relationship

between the greater presence of testosterone in the male body as a hormone that contributes to decreasing the effects of oxytocin in men.

We can now establish with greater clarity how the construction of gender is reflected in the promotion of oxytocin. The descriptions about the action of oxytocin are based on the supposition that female and male bodies are, in fact, distinct and complementary in relation to the hormonal economy and its relationship with specific cerebral functions. The way that gender difference – simplified and reduced by a biological and molecular discourse – is elaborated, allows us to see how this difference is produced through the discourse about oxytocin.

This issue appears in the tendency observed to associate the action of oxytocin in the sense of feminization and masculinization of male and female bodies, respectively. This can be verified in various explicit references about the effect of oxytocin in calming down men or making them less aggressive. To illustrate this question, we cite an article in the journal *Gazeta Online*, which opens with the following subtitle “Hormone has the power to calm men and strengthen female sexuality”:

Then, if oxytocin can calm the male spirit during a lover’s quarrel and increase female libido, leaving a woman more ready to give and receive love, who can deny that it is capable of performing miracles in a relationship? (Fafá, *Gazeta Online*, December 2011).

This statement is the result of a study conducted by the Faculdade de Medicina e Ciências Farmacêuticas de São Paulo (USP) [The College of Medicine and Pharmaceutical Sciences of São Paulo at the University of São Paulo], in which a group of men inhaled oxytocin spray before speaking in public, and then displayed greater calm and security than the group that inhaled a placebo. According to the article, this shows that: “the hormone can leave men more secure and calm and relieve tension” (Fafá, December 2011). In the same line of argument, endocrinologist

Tatiana Cunha affirmed, in an online article in the magazine *Exame*, that oxytocin makes men “less aggressive, more pleasant and with more suitable social behavior, **although its action is often blocked by the action of testosterone**” (Cunha, *Exame*, May 2013, emphasis ours).

It is interesting to note the role attributed to testosterone, as a masculinizing substance related to aggressiveness and also to the instinctive disposition for behavior of struggle and escape, based on a clear analogy to the behavior of animals. Considering the explanations about the influence of testosterone on blocking the action of oxytocin, the discourses suggest that aggressiveness is a typically male trait. In the same sense, the association to the capacity to love and provide protection and security are presented as naturally female behaviors, as we can see in the following statement: “They look for those who love, whether because they offer security or because they feel that they need their protection” (Soalheiro, *Super Interessante*, October 2003).

It is possible, therefore, to conclude that according to these discourses oxytocin triggers behavior that is not “naturally” expected from men and women. For men, oxytocin appears to make their masculine behavior “more docile”, through control (but not erasure) of their aggressiveness, an attribute seen as natural to men. At the same time, the same substance acts to promote female “sexualization”. The latter issue is aligned to the common understanding that women are naturally less inclined towards sex than men and more inclined towards love and fidelity. The naturalization of the capacity to love as a female behavior can be illustrated in the affirmation that: “Oxytocin also appears to explain a never proven idea, but one that is widely promoted: that women love more than men” (Soalheiro, *Super Interessante*, October 2003).

In this way the discourses express the naturalization of the relationship between sex and love as opposing and complementary attributes, which are naturally associated to the supposed physical-moral dispositions of men and women respectively. In this aspect, oxytocin, in its artificial presentation,

appears to act precisely to suppress the “naturally” decreased activity of sex for women and of the capacity to love and be faithful for men. It thus promises, in the final instance, the promotion of the durability and stability of the conjugal relationship.

The investment in the monogamous conjugal relationship appears quite evidently, for example, in the section *Ciência e Saúde* [Science and Health] on one of Brazil’s leading news portals *UOL*. The title of the article grabbed our attention: “Hormônio do amor faz homens verem suas mulheres como mais atraentes” [Love Hormone makes men see their wives as more attractive]. Following the standard of being based on “scientific studies” to legitimize the affirmations, the article begins with a strong lead: “Oxytocin, known as the ‘love hormone’, has an important role in male fidelity and in monogamy, according to a study conducted at the University of Bonn published Monday” (*Uol Notícias: Ciência e Saúde*, November 2013).

This study was published in the journal *Proceedings of the National Academy of Sciences of the United States of America* in which scientists found that men with higher quantities of oxytocin in the brain see their partners as more attractive than men with lower levels of this substance. The article explained that the study was conducted by spraying oxytocin in the noses of forty heterosexual men who lived with their spouses. The scientists “discovered” that the view of the partner indicates that oxytocin activates the center of gratification of the male brain, which according to the article strengthens monogamous behavior in men. The article concludes with the statement of the director of the study about the correspondence between the biological mechanism of oxytocin to taking drugs: “both in love as in drug consumption one seeks to stimulate the brain’s center of satisfaction” (*UOL Notícias: Ciência e Saúde*, November 2013)

Here we have an example of the importance of the so-called gratification system for the maintenance of certain behaviors, which are associated in these articles to survival of the species. The discourses about oxytocin affirm that sex and love are closely

related dimensions and at times are confused. This commitment between sex and love that is established by the mediation of pleasure awakened by oxytocin, whether in a sexual relationship, or in childbirth and breastfeeding, is emphasized as a condition for the durability of relations between couples and mothers and children, expressed in the idea that “sex is fundamental for the creation and maintenance of a long-lasting bond” (Mendes, *Papo Feminino*, September 2010).

From “love in the laboratory” to “love in the pharmacy”

Although this argument was found with greater emphasis during the decades of the 1990s and 2000s, arguments are still found that reproduce what would be scientific explanations for love or pleasure. These are efforts to convince readers that science has revealed the biochemical mechanisms, above all hormonal ones, that explain the complex biological workings behind the sensations and feelings of each man and woman. This is seen for example in articles in the magazines *Veja* and *Super Interessante* that highlight oxytocin with the exemplary titles; “O curto-circuito do orgasmo: como funciona o prazer humano: A evolução criou o prazer sexual como pretexto para o acasalamento. Pela causa justa de estimular a reprodução das espécies, valeria a pena superativar o cérebro, deixando-o à beira do esgotamento” [The short-circuit of an orgasm: how human pleasure operates: Evolution created sexual pleasure as a pretext for coupling. For the good cause of stimulating reproduction of the species, its worth overactivating the brain, leaving it nearly depleted] (Oliveira e Paparounis, *Super Interessante*, November 1993); “O barato total: O amor romântico existe, causa deliciosas reações químicas e pode até criar dependência” [The total high: Romantic love exists, causes delicious chemical reactions and can even create dependence] (*Veja*, June 1993); “Ciência do desejo” [The Science of Desire] (Petta, *Super Interessante*, June 1996); “A fusão dos corpos, sexo: O ato sexual é o momento decisivo para a sobrevivência da espécie. E um dos mais maravilhosos, também.” [The fusion of bodies,

sex. The sexual act is the decisive moment for the survival of the species. And one of the most marvelous as well] (*Super Interessante*, October 1999); “Amor no laboratório: Eles já mapearam parte do estrago que ele causa ao nosso cérebro e até encontraram um hormônio que seria um verdadeiro elixir do amor.” [Love in the Laboratory: Some of the damage that it causes our brain has been mapped and a hormone has been found that is a true love potion] (Soalheiro, *Super Interessante*, October 2003); “Sexo no laboratório: A surpreendente história das pesquisas científicas sobre aquilo que muita gente faz, mas poucos sabem como funciona” [Sex in the laboratory: The surprising history of the scientific studies about that which many people do, but few know how it works] (Costa, *Super Interessante*, August 2008); “Amor - O Início: Você perde o sono, a fome, sobe às nuvens e sente a vida virar de ponta-cabeça. Mas o que, afinal, faz com que uma pessoa se apaixone por outra?” [Love – The Beginning: You lose sleep, hunger, float in the clouds and feel life turn upside down. But what, after all, causes one person to fall in love with another?] (Callegari, *Super Interessante*, May 2010); “10 perguntas curiosas sobre orgasmo: A conspiração física e emocional que leva multidões ao delírio” [10 Curious Questions about Orgasm: The physical and emotional conspiracy that leads multitudes to delirium] (*Super Interessante*, August 2012); “A química do amor” [The Chemistry of Love] (Yarak e Rosa, *Veja*, June 2013); “A química da paixão” [The Chemistry of Passion] (Rochedo, *Super Interessante*, May 2015).

Since 2009 we find, in addition to frequent scientific explanations for love, sex and pleasure, a new tone that offers an increasingly detailed biochemical description of these processes. It is interesting to observe that the previously generic language about hormones began to take on more “precise” contours in neuroscientific terms. The explanations necessarily refer to the brain, to neurotransmitters and to the fact that oxytocin is produced in the hypothalamus. Moreover, other actors begin to appear, such as the hormones vasopressin (which is associated to a “gene of infidelity”) or irisin (which is associated to weight loss) and gradually the discourse appears to become more specific, with

each substance attributed a quite precise function. Meanwhile, the general associations with values marked by gender and a neoevolutionist discourse remain constant.

In addition, another important transformation concerns the fact that the articles refer to the possibility of the use of synthetic oxytocin, beyond the context of childbirth and breastfeeding. In general terms, it involves announcing the “good news” that this resource is already being produced or made available in the United States, and that it can already be found in Brazilian pharmacies. It is indicated for improving sexual satisfaction for both men and women who the articles affirm can benefit from the medications’ ability to induce relaxation or even intimacy and bonding. Once again, the contrast between the sexes is reported, with oxytocin related to female characteristics, but it is affirmed that it can perhaps benefit some men. Meanwhile, testosterone, “the masculine hormone par excellence”, as all the articles report, is associated to desire, and should be offered to many women who are nearly “naturally” deficient in this issue.

It is necessary to mention that the only older article that mentions oxytocin does not refer directly to the use of synthetic oxytocin but to incentives to its production, and was published in *Super Interessante* in September 1998, in the context of the release of Viagra. With the suggestive title “Pleasure Pharmacy”, the article presents new investments by pharmaceutical companies in treatments for sexual dysfunction. The emphasis is evidently given to Viagra, and it mentions tests underway at that time to use the medication for women. Moreover, an overview of various available resources, mentions precisely the projects that would become concrete later. Oxytocin and testosterone appear at the time as promises entering the scene:

Drops of strength

Apomorphine, which is normally used to treat Parkinson, installs itself in brain cell receptors activating the production of the hormone oxytocin. The oxytocin travels through the blood stream to the penis, provoking relaxation of the veins

and of the corpus cavernosa. This increases blood flow that sustains erection.

From one sex to another

Testosterone, a male hormone used by women in menopause, is indicated for feminine frigidity. Connected to receptors in cells of the hypothalamus, it stimulates the production of the hormone serotonin, found in the organism of both sexes. This, in turn, goes to the cerebral cortex, increasing the libido (Lucirio, *Super Interessante*, September 1998. Emphasis in the original).

Discussion of this type of resource only appeared with greater emphasis and frequency at the end of the following decade, when we identified this rhetoric in many articles: “Poção do amor: Macumbeiros e cartomantes na fila do desemprego? Pode apostar, dizem alguns neurobiólogos” [Love potion: Shamans and fortune tellers on the unemployment line? You can bet on it say some neurobiologists] (Lopes, *Super Interessante*, May 2009); “A substância do amor: Como funciona a oxitocina, responsável por estabelecer e reforçar os vínculos afetivos entre mãe e filho – e entre amigos, namorados, amantes...” [The Love Substance: How Oxytocin functions, and is responsible for establishing and reinforcing emotional ties between mother and daughter – and among friends, boyfriends, lovers...] (Magalhães, *Veja*, May 2010); “O ABC dos sentimentos: As descobertas da neurociência sobre a química das emoções mostram como elas são fundamentais também para as decisões movidas pela razão.” [The ABC of feelings: The discoveries of neuroscience about the chemistry of emotions shows how they are also essential to decisions moved by reason]. (Magalhães, *Veja*, September 2010); “O segredo da paz e do amor: Os estudos com a oxitocina, a substância que rege os vínculos afetivos, comprovam a grande influência dos hormônios sobre o comportamento humano” [The Secret of Peace and Love: Studies about Oxytocin, the substance that guides emotional ties, proves the strong influence of hormones on human behavior” (Lopes, *Veja*, November 2011);

“Hormônios: Eles comandam tudo, do humor ao emagrecimento.” [Hormones: They control everything, from moods to weight loss] (Cuminale e Lopes, *Veja*, August 2012); “Amor de farmácia: como a ciência está metendo o bedelho nos relacionamentos” [Love from the Pharmacy: How Science is Sticking its Nose in Relationships] (Castro e Van Deursen, *Super Interessante*, November 2012); “Paixão é cocaína. Amor é Rivotril” [Passion is Cocaine. Love is Clonazepam] (Versignassi, *Super Interessante*, May 2013).

In an article published in *Super Interessante* in May 2009 we see the announcement that new scientific discoveries make a “love potion” possible:

The date rape drugs feared at parties around the world, will perhaps be substituted in the future for a much more dangerous ingredient, which will be quite interesting to those who want to take advantage of their victim for long periods. We are speaking of a true love potion, based on the deepest biochemical details of the human emotions and ready to produce instant passion, or nearly so.

The possibility of this Machiavellian plan was recently defended by U.S. researcher Larry Young, of Emory University, in an article in the prestigious British scientific journal *Nature*. Young already has the names of some possible ingredients: the hormones vasopressin and oxytocin, found in humans and in various other mammals. (Lopes, *Super Interessante*, May 2009).

An article in *Veja* in May 2010, revealed that advances in neurochemistry indicate that the functioning of the “substance of love” goes beyond the mother child relationship, it also feeds bonds of friendship and romantic love, expressed in terms of sex and orgasm. In this line of discovery, it was announced that oxytocin would play a key role in two medications: one for increasing the female libido (a female Viagra), which was expected to reach the market at the end of that year; and another for use in autistic children, to increase affection and facilitate relations.

In the following year *Veja* (Lopes, November 2011) published a long article about the issue, highlighted on the cover, which showed a naked heterosexual couple hugging: “Oxitocina: O hormônio que intensifica o amor e aquece o sexo” “Oxytocin: The Hormone that intensifies love and heats up sex”]. Mentioning the existence of 500 studies about hormones underway, the article emphasized the importance of oxytocin as “the hormone with the broadest action on the behavior of men and women”. It refers to a study done at the Universidade de São Paulo (USP) that found that volunteers who inhale oxytocin become more calm and secure. It reported that the hormone causes a calming effect close to that of benzodiazepine, except with lighter collateral effects (including, light colic, and crises of jealousy). The article presented a series of explanatory sidebars to summarize the importance of other hormones, although the focus was on consuming oxytocin in the framework of “romantic relationships”. The passage below summarizes exactly this idea, presenting the medication *Oxytocin Factor* and mentions that it is possible to find it in Brazil:

Thanks to these qualities [generally associated to calming], oxytocin is widely sold in the United States. It is formally indicated to stimulate the release of mother’s milk, the hormone is available in pharmacies (including in Brazil) for at least ten years. In the past seven months, we have had a surprising 30% increase in sales, Kelly Jones told *Veja*, she is manager of the laboratory ABC Nutraceuticals, the manufacturer of Oxytocin Factor, the most popular brand of the hormone in the United States. The new clients are usually men and women who want to improve their loving relationship. Thus, from being a hormone tied to maternity, oxytocin became a type of ‘Viagra of the soul’. A few sprays of oxytocin in the nose before sex, and couples report wonders under the sheets [...]. (Lopes, *Veja*, 2011:112)

In 2012 *Super Interessante* published an article entitled “Amor de farmácia: como a ciência está metendo o bedelho nos relacionamentos” [Love from the Pharmacy: how science is

sticking its nose in relationships” which announced: “A medication that recently arrived in U.S. pharmacies is science’s latest step in search of eternal love. Moreover, specialists believe that it is possible to end infidelity. All that is needed is to manipulate the right hormones and genes” (Castro & Van Deursen, *Super Interessante*, November 2012).

The text reports how a group of scientists has studied the increase in the number of divorces in the United States from an evolutionary perspective and associated this phenomenon to hormonal causes and the fact that we are not biologically prepared for long-lasting relationship. Announcing the presence of a medication, it affirms:

But if it is up to this group of scientists, this will change. Their idea is to encourage the production of medications to end the scarcity of these substances. To do so, they study their role in love, to discover how their limited supply interferes in relationships and how it could be beneficial to increase their doses in the body once again. However, while they focus on theoretical issues, another group is already putting the ideas in practice. The love medicine comes in a 7.5 ml recipient with a dropper, or in the form of a nasal spray. Oxytocin is in the air. (Castro & Van Deursen, *Super Interessante*, November 2012).

The article then explained that efforts to create and use a medication based on oxytocin for purposes associated to general well-being and pleasure in relationships dates to 2010, when U.S. psychiatrist Bryan Post “decided to synthesize and bottle the hormone”, baptizing it *Oxytocin Factor*, which is now available in pharmacies in the United States. Although the article proposes a series of questions such as “to what point is eternal love good”, it focuses on the possibilities for its use, including to encourage longer lasting relationships. The ease of use was highlighted: “With two sprays in the nose or six drops under the tongue, the hormone flows through the blood stream and soon enters the central nervous system, reducing the level of cortisone (the stress

hormone) in the blood. Then everything calms down.” In addition, there is a sidebar that we suppose was prepared by the journalists, entitled “Oxytocin days: we tried the love drug. See how it was”, with the following report:

It tastes like mint. For it to take effect, you have to drop six drops under the tongue or squeeze the spray once in each nostril. After ten minutes, the drug begins to function and lasts up to four hours. In a short time, the arms become limp and the heart slows down. Dumb jokes seem funny. The desire to defend any position drops to zero. It becomes difficult to put up a fight. In fact, a heated lover’s quarrel dissolved into space when the spray took effect. For a time, everything was beautiful. Smiles and hugs were easy. Its good. But to base daily peace or even worse, sustain a relationship on these drops seems a bit scary. (Castro & Van Deursen, *Super Interessante*, November 2012).

In the article “Paixão é cocaína. Amor é Rivotril” [Passion is Cocaine. Love is Clonazepam], published in May 2013, we have a new version of the description of passion and love in more evolutive terms and expressed in certain substances. According to the article, passion is an instinct triggered by the secretion of dopamine, “the same substance that cocaine activates in the brain”. It continues: “these secretions, from a scientific perspective, exist for a single reason: for you to have children”. Or, in other words, “pass on genes, preferably in the company of the best genes available in the market”. But passion is described as a “chemical roller coaster” too debilitating for any organism. And for this reason could not last a long time. This is when Oxytocin enters the scene:

What destroys the hormones of passion are precisely other substances that the body releases during orgasms: oxytocin (in women) and vasopressin (in men). These are lighter drugs. Anxiolytic. They transform the troubled sea that is passion into a sea of tranquility. If a relationship continues well, these substances will strengthen ties between the

couple. They will be the trigger for another instinct: that of becoming mother and father – women, for example, have these same hormones activated during breastfeeding. So they relate the peace of oxytocin, an anxiolytic, to the idea of childcare. Passion is cocaine. Love is clonazepam. (Versignassi, *Super Interessante*, May 2013).

It is interesting to note that these articles also refer to the more precise idea of love as a substance, as a biochemical element, as medication – and even more precisely, as an anxiolytic. If in a first period the articles were concerned with explaining love scientifically, we now perceive a new emphasis in their expression in pharmaceutical terms. This transformation is well illustrated by the contrast between the titles of two articles published in *Super Interessante*. If at first the focus was “Amor no laboratório” [Love in the Laboratory] (Soalheiro, *Super Interessante*, October 2003), more recently it came to be “Amor de farmácia” [Love from the Pharmacy] (Castro & Van Deursen, *Super Interessante*, November 2012). It thus involves not only a reference to distant discoveries in the laboratory or to scientific explanations but of access to something that can be consumed and modify behavior, thus referring to science in daily life or to the idea of promotion of scientific self-help (Fonseca et al., 2012; Rohden, 2012).

While the magazine and newspaper articles provide recurring examples of this promotion of possible uses of oxytocin, on the sites of doctors, pharmacies and those dedicated in general to health and well-being, we find even more direct references to possibilities or expectations for the consumption of a medication that contains the substance. For example, one article published in the magazine *Glamour* (February 2013) was reproduced in a blog about “relationships, sex, love, seduction and pleasure” entitled “Esquentando o clima” [loosely, Getting in the Mood] (March 2013). The article highlights that “chemical substances responsible for passion have been bottled and become a kit for the insecure”. Once again it involves oxytocin, according to the article, known as the love hormone, associated to pleasure in sexual relationships, to physical and emotional well-being and to the sense of security and

fidelity between a couple. The novelty is that it is already available in the market, thanks to the fact that scientists created a formula that could be sold as a medication in liquid or spray form. This is followed by a presentation of the medication (alongside two perfumes based on pheromones and which can also enhance sex):

Oxytocin Factor: made from a base of synthetic oxytocin, the product can be used in sublingual drops or as a nasal spray. You choose how you prefer to ingest the love droplets, given that the two versions have the same price US\$ 59,95 (approximately R\$ 99) and are even sold on the Internet. Do they work? We don't know, but if it depends on the slogan it will, yes, make love and relationships possible. It says so on the label, which reads 'Makes love and relationship possible', and warns: may cause adverse reactions like chest pain, change in heart rhythms and confusion. Ah! The manufacturer guarantees that if in one month it has no effect, your money will be returned, OK? (*Glamour*, February 2013).

Hormones control everything:

Beyond what was already described, as a type of new chapter of references to oxytocin, we increasingly perceive in the discourses analyzed a preeminence of the hormones to explain not only diseases or problems, but also as a solution and means to improvement. Among the possible benefits of the use of artificial oxytocin, beyond those associated to "love" and sexual pleasure, are increased confidence and the ability to relate with other people, as studies show of use by people with autism, for example. There are also references to the possibilities of treatment of alcoholism, given that the effects of oxytocin are said to be similar to those of alcohol. Nevertheless, there are more common comments about its benefits for helping weight loss or, more precisely, to inhibit consumption of calories, as well as fighting aging (Zak, *Mente e Cérebro*, September 2009; *Veja*, June 2012; Lopes & Cuminale, *Veja*, August 2012; *Musculação Total*, December 2012; Nogueira & Gastaroni, *Super Interessante*, December 2012; *Veja*,

December 2013; *Zero Hora*, April 2014; *Mente e Cérebro*, June 2014; Padalino, *Youtube*, February 2015, *Fontanive*, March 2015; Penchel, *Fashion Blogger*, May 2015; *Mente e Cérebro*, November 2015).

This issue appears in many sources, above all in the most recent news. The article “Hormônios: Eles comandam tudo, do humor ao emagrecimento” [Hormones: they control everything, from moods to weight-loss], published in *Veja* (Cuminalde & Lopes, August 2012) is an example of this. It affirms that “human existence is defined by an interior sea” composed of hormones and highlights the discoveries of irisin, “the latest find in the intricate and fascinating hormonal network that rules our body and mind”. As a function of its capacity to accelerate the metabolism, it has been called “exercise in drops”. Once again oxytocin is highlighted in this process as one of the few hormones produced directly in the brain, and for this reason, “one of the substances that most influence human behavior”.

An article in the newspaper *Zero Hora* from Porto Alegre (2014) summarizes the arguments for the use of oxytocin to fight aging. Entitled “Ocitocina, o ‘hormônio do amor’, tem propriedades de antienvelhecimento” [Oxytocin, the hormone of love has anti-aging properties], the text reveals that recent studies have demonstrated that the substance can assist in treatments to maintain and repair aging muscle. According to a study at the University of California Berkley, published in the journal *Nature Communications*, researchers have observed the levels of oxytocin in rats and concluded that the presence of the hormone decreases with age. According to the newspaper “the older rats have less oxytocin receptors in muscular trunk-cells. Upon injecting the hormones in rats, the injured muscles of the older rats began to heal after only nine days”. According to the article, the senior scientist and coauthor who led the study, Wendy Cousin, said this proves that “extra oxytocin” improves the trunk cells of aged tissue and will probably “surpass traditional hormone reposition therapy as the main anti-aging treatment”.

The article is an example of the most recent discourses also because it appears under the heading “Romantic and Functional”,

making reference to the so-called love hormone. This pair of adjectives synthesizes what we have described about the representations of oxytocin as a biochemical expression (and cause) of emotional relations on one hand, and on the other indicates the new emphasis on the idea of functionality. This change can be interpreted in terms of a nearly direct correspondence with what Marshall (2010) argued, as we will see below: if aging was considered normal until recently, today it is seen as a dysfunctional process that should be treated or avoided.

Passing from the news in magazines and newspapers to the field of sites of healthcare professionals, we select the blog of doctor Paula Taciana Figueiredo, called “Saúde e bem-estar” [Health and Well-being] given that it is quite illustrative of a broad definition both of the symptoms of the lack of, as well as the benefits of the use of oxytocin. In the article “Ocitocina: mais que apenas o hormônio do prazer” [Oxytocin: more than just the pleasure hormone], published in June 2012, she presents the important psychological and physical effects of this substance on the organisms of men and women. Among the psychological effects would be stimulating sociability, facilitating the formation of bonds of friendship and closing emotional ties and mood and reducing anxiety. The physical effects of oxytocin mentioned include vasodilation, increase blood flow to the skin, accelerated healing of wounds, increased sexual potency, improved libido, increased pleasure during orgasm, muscular relaxation, pain reduction, stimulation of the production of anabolic hormones (such as IGF-1 and testosterone) and reduction of the production of catabolic hormones (like cortisone) thus decreasing the loss of muscle mass.

According to the doctor, the most common signs and symptoms of oxytocin deficiency would be: social isolation, emotional isolation, sadness and depression, difficulty in expressing emotions, pallid skin, dry eyes, dry skin, muscle tensions, sleep disturbances, increased sensibility to pain, muscle pain and painful “points” (fibromyalgia). Specifically in men, low libido, low sexual potency, difficulty in ejaculation, low sperm

count and absence or difficulty attaining orgasm. And in women: low libido, absence or difficulty in attaining orgasms and low intensity of orgasms.

After this list of benefits and symptoms, the article recommends seeking medical advice and “speaking about the possibility of being deficient in oxytocin because, in addition to improving the symptoms that you may be presenting, a chronic untreated deficiency of oxytocin can facilitate the appearance of other pathologies.” There is also a reference to the fact that “when the repositioning of oxytocin is necessary, the best method is sublingual because it is most practical and gives the best results” and the dose should be adjusted to the clinical response. Given this situation, it is not surprising that most comments posted on the blog are questions about how to buy and use the medication.

Biochemical improvements and gender revisions

We believe that the descriptions made demonstrate how oxytocin plays an important role in the explanations and recommendations about the “chemistry of love” presented in the communication media analyzed. To conclude, we would like to present two final observations. The first concerns the transformation of this hormone into a resource made available in the form of a medication. As we saw, many of the more recent articles mention the products now available on the market. We cannot affirm that there is simply a direct correspondence between the interests of the pharmaceutical market and the promotion of this type of news. But there is clearly a movement to create expectations about the possibilities for the use of a device of this type.

This finding is in keeping, on one hand, with the increasing medicalization of the sexuality of men and women, which is supported by the advent and astounding success of the market for medications for erectile dysfunction and projections about new drugs for female sexual dysfunction. On the other hand, the logic of betterment and improvement, expressed particularly in

biomolecular terms, according to Rose (2007), has acquired growing appeal. The idea that it is necessary to become constantly “more” and “better” and that one can and should make use of the resources available on the market, is regularly mentioned in the media. In this sense, we can evoke the affirmation of Marshall (2010), who pointed out that it is no longer enough to be “normal”, in the sense of being in good health, but that it is necessary to constantly seek to be more “functional”. The author refers to the passage between a model concept of health based on the pairing of normal-abnormal, and that recognizes normality in conditions such as aging, to a model based on the pairing functional-dysfunctional. In the latter, although it may still be considered normal to get old, a new cultural norm determines that we should struggle to attain maximum functionality, whether in terms of sexual potency, physical activity, intelligence, memory etc. Therefore, we are no longer discussing medication to treat disease but a much broader use of pharmaceutical resources to increase performance, in various dimensions of life.

This discussion is important for us to also understand the promotion of hormones and in particular of oxytocin as new resources or possible technological devices. As Oudshoorn (2004) maintains, technologies are materializations of different types of negotiations that involve cultural values and practices. The dimension of gender is certainly part of these negotiations, which brings us to the second and final consideration. This is to problematize an apparent contradiction: if the sexes and genders dichotomically attributed to them in these narratives are conceived by their hormonal differences, why is it suggested that men should consume oxytocin and women testosterone?

We can surmise that these uses are in keeping with the preeminence of the logic of improvement, which calls for and encourages the use of multiple resources in the search for self-improvement, even if this is often expressed by emphasizing the use of medications. This involves what we can call a biochemical administration of the self, in which the opportunities for improvement and satisfaction are subsumed or necessarily

associated to the use of pharmaceutical artifacts. In this direction, it can be conceived that an extra dose of testosterone is necessary for women to reach the “optimal” male levels of desire, strength or sexual energy. In the same way, men can benefit from a few sprays of oxytocin in the nose to produce a more functional level of calm, intimacy and nurturing. These possibilities for the use of hormones, which are admitted and viable within the more general panorama of medicalization of sexuality and emphasis on improvement, may appear to indicate a certain blurring of the borders between the sexes. Nevertheless, if we consider the discourses analyzed more carefully, we perceive the greater weight attributed to the differences understood to be innate.

All the articles cataloged highlighted an absolutely dichotomic presentation of the bodies and behaviors of men and women in virtue of a differentiated hormonal logic. Focusing only on the pairing oxytocin-testosterone – while other hormones only corroborate this logic – women are described by the association with oxytocin, which is “naturally” present in larger quantity in their organisms due to its role in childbirth and nursing and therefore according to these discourses, in the reproduction of the species. Meanwhile, men would be characterized by the production of testosterone, the “male hormone par excellence”. Alongside oxytocin, we have a chain, always primordially associated to women, which links terms such as love, nurturing, proximity, empathy, calm, tranquility, recognition of family and formation of long-lasting bonds. Meanwhile, testosterone, primordially attributed to men, is associated to passion, desire, power, aggressiveness, infidelity and other terms.

That is, on the plane of that which would be constitutive, primordial and congenital, oxytocin and testosterone are presented to reaffirm what would be the original biological differences, which are always used, in the context investigated, to explain and justify gender distinctions. We can say, referring to Butler’s terms (1993, 2003, 2005), that sex, gender and desire, in the dimension of these narratives, are always presented as performed in conformity with the heterosexual and reproductive norm, based on the

biologicalization of differences. Even if the addition of a certain extra quantity of these hormones can be conceived, through the consumption of medications, in terms of gender definitions there is a prevalence in these texts of what is described as biologically constitutive. After all, “acquired” has a value and a meaning that is quite different from “natural” or innate.

Finally, we emphasize that it is necessary to call attention to this type of specific performance because many times, since it involves discourses that express “technoscientific discoveries”, we may have the illusion that a more asymmetrical perception in terms of gender would be more distant - or that if the differences and relationships would be defined in such molecular terms, it would be difficult to attribute differential values. Nevertheless, based on what we see about oxytocin and testosterone, although the consumption of supplemental quantities is seen as conceivable to improve the performance of men and women, in terms of what defines the existence of each one, emphasis is still given to that which is understood as an innate, original difference, and reproduction of the species depends on its maintenance.

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