

# WEB-BASED SERVICES AT WPATH SOC-7

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## Abstract

*All systems are Wild or Mild – in the statistical sense (Mandelbrot&Taleb,2010). Unusual gender conditions show Wild variations (Torres 2007). If it was a Mild (Gaussian) system, we would not be able to measure mentally disordered self-perceptions at a distance. The web-based approach would not be easily feasible (Fraser 2009). Due to the fact that gender conditions follow naturally Wild (alfa stable Levy) distributions (Torres 2007, Mandelbrot&Taleb,2010), there is an overall and drastic change in the perspective. The system admits huge variations and extremes. The patient's self-perception may be healthy, and the unusual situation may be extreme. So we may measure the system at a distance, and the healthy patient inside it. Only after it we may evaluate if the patient is mentally healthy or not. Considering the above, we may develop objective web-based methods to diagnose<sup>3</sup> people at a distance. A method that was pioneered by Gendercare since 2001. We would like to share our experience as a contribution to the next version of the WPATH SOC-7<sup>th</sup>.*

## Introduction

To a large degree, Unusual Gender Conditions-UGC (or Gender Variances, or Gender Non-Conformities or Gender Incongruences, or any other terminology) which may trigger a gender dysphoria, remain a mystery.

Why would someone with perfectly-formed genitals of one gender (M or F) feel that he or she might belong to the opposite gender? Why a so big variation of the self-perception?

Many theories have been proposed to explain these unusual gender conditions, mainly the extreme conditions as transsexuality and transgenderism, some based on genetic and neurobiological causes, others based on social and cultural causes, and dramatic clashes have often ensued among the proponents of different theories. Some experts based on ecological factors believe gender

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3 Diagnose here has the sense of the identification of a typical condition inside a typology, not necessarily a “medical” diagnosis.

unexpectancies were not inherently a problem but merely one harmless aspect of human diversity (French and Cuban governments follow that way, and also Ilga and Yogyakarta human rights documentations). Some conservative mental health professionals still classify it as a mental disorder (as insist APA DSM committee). Scientific progress in this area has been slow, but causes are gradually being elucidated, mainly based on brain research (Freitas, 1998; Torres 2006a). In the meantime, professionals and patients alike agree that people who suffer discordance between their gender identity and genital formation, due to multivariate factors, living extreme conditions, benefit from hormonal and surgical interventions in order to achieve harmonious lives. However, such assistance is presently available to only a small fraction of the world's population.

Could we provide some of the assistance people with gender dysphoria need by means of the internet? Is it possible to provide adequate diagnosis<sup>4</sup> without face-to-face interviews with patients who live far from any professional assistance? Could we provide gender transition counseling, hormone therapy letters and orientation, and even SRS referral letters through Web-based services? Gendercare Gender Clinic has been in existence since 2001 developing Web methods to evaluate and treat gender dysphoria, as a pioneer on web-based services. The Web may be the best way to provide people with help for gender dysphoria, and we propose to describe our rationale and methods in this paper to help WPATH to consider a review of its Standards of Care, 7<sup>th</sup> edition.

## Points of Principle

How do we perceive? And self-perceive? our gender? Why do we perceive our gender that way?

1st. We perceive things through the contact of our neural micro-sensors (the synapses of our senses), then the transmission of these sets of micro-impulses to and through the brain (CNS), and finally the translation of these data in a language of dispositive images, generating a mental language (Damasio, 1996);

2nd. There is no place in the brain (CNS) or outside it, where these mental images converge - these images are related to the body and the brain - but are nonlocal - Henry Stapp (2007);

3rd. The mental images synthesized are the result of a statistical coarse graining or renormalization (Wilson 1979 for the renormalization math), as sum and products of many microscopic processes that generate macroscopic information (as mental images). Sornette (2006) and Verlinde (2010).

4th. That process of renormalization generating macro-perceptions (including self-perceptions) is important when we study gender self-perception (gender identity).

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<sup>4</sup> In the sense of recognition inside a typology

5th. We may no more ignore that complexity. If we bypass it we will prepare a weak and biased (really fake, even pseudo-scientific) "evidence based background", and old things will look like "obvious" – mistakenly.

## The Statistic Background We Need

The statistic background we need to know - the statistics of the coarse graining we know and live as MIND and SELF-PERCEPTION is the statistics of additive and multiplicative processes. Additive processes give rise modernly to the generalized central limit theorem: All addition of stochastic variables converges to a Levy alpha-stable probability distribution function (pdf). To know math details about these pdf see the link at the Bibliography and Sornette (2006). These pdf are characterized by some parameters, one of them is the alpha. **When alpha is between 0 and  $<2$  (when the variances are not defined) - the sum is distributed by the Levy distribution (or Pareto pdf, or Pareto-Levy pdf or a power law pdf or a scale independent pdf, or a fractal pdf - all these are roughly synonymous) and are considered Wild (Mandelbrot&Taleb 2010). With finite variance,  $\alpha \Rightarrow 2$ , the sum converges to the Gaussian distribution (a Mild one).**

One example of Gaussian pdf is the distribution of heights among American men – there is a definite mean and a Mild variance,  $\alpha \Rightarrow 2$ .

With the riches of the same people, some have thousands or millions of times more than others, the variations are enormous, really Wild. The pdf is clearly Levy stable, with alpha between 0 and  $<2$ . There is no finite variance and possibly no mean.

We may say there is a normal height but not a normal richness among Americans. There are Americans abnormally short or high, but not abnormally poor or rich.

The same happens with the energy of earthquakes, hurricanes, number of people in cities, tree distributions in forests, venules in the bronchi and the blood circulation, the fracture of rocks, the distribution of clouds, of asteroids, of galaxies, of branches in a tree ... **and among gender identities.** These are systems that naturally generate large variations – when dispersion necessarily generate extremes. Nowadays we know, most of the systems in the Universe follow that Wild pattern. In math we say their basin of attraction is Wild. The Mild basin of attraction is the exception.

## Gender Self Perception is Naturally Wild

Among gender, we have two poles, as limits. And between them a distribution that may not be Gaussian, due to the huge variation – between M and F there is a whole Wild universe NECESSARILY. Unfortunately most we do in medicine and psychology even today, we do still imagining we live in a universe of Gauss (as our math understood until the middle of the last century), where we imagine stationary events as “normal” ones, where there are fixed means and variances were Mild, where we define WHAT IS NORMAL and what is ABNORMAL or DISORDERED. **Reality shows us that Mild Gauss is the exception - the rule is Wild Levy.** For details see Sornette (2006) and Nolan (2009). Events with big energy, as extreme events can destabilize relations with catastrophic movements. Mandelbrot&Hudson (2006), Mandelbrot&Taleb (2010). Gender self-perception follows that pattern when an extreme event happens (as transsexuality or transgenderism). Earthquakes may destroy cities, big floods may destroy whole regions, families may be destroyed by the emergence of a transsexual condition, a suicide may destroy the person by despair. **The mere EXISTENCE of transsexuality (AN EXTREME EVENT) is enough evidence that gender self-perception system is a WILD Levy system.**

## Wild Aditive & Multiplicative Progressions

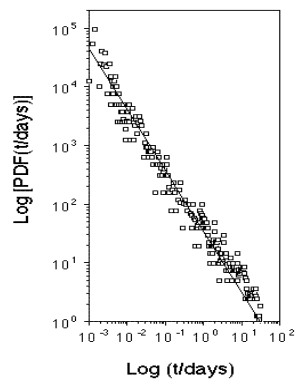
Imagine now a gradual process over time - an earthquake, a fracture in a bridge, a baby is born, an egg that develops in a womb. These are multiplicative processes. The variable  $X$  in time  $t$  has a value - and at time  $t + 1$  it will have another value that will be dependent from the former ones, in a proportion that may be random and dependent on time. Redner (1989) thoroughly examined these systems and concluded that random multiplicative processes do not converge to Gauss pdf - but to Levy pdf's - while keeping the process and system as transient (not recurrent and not stationary). If stationarity is reached - that stationarity behave like a Gaussian distribution.

Imagine now a mental experiment (as we do in particle physics). A human egg in a womb will generate a trans person. The egg develops gradually due to multiplicative micro-processes and aditive micro-influences, inside an environment (a womb) and becomes a baby and the baby grows and becomes a child. This process is multiplicative, progressive and surely TRANSIENT - during the growing (forming) of the new life. That complex process allows large variations as a WILD and not a MILD process, as defined by Mandelbrot & Taleb (2010) and established by Redner (1989). The trans person will SURELY develop a self-perception of gender, uncommon and extreme. By

definition. Due to genes? Hormones? The womb environment? The causes are not important for us now, but the fact that the WILD variation is a characteristic of the system, **because transsexuality factually exists**. It is a fact.

### The Math of Levy Pdfs

The shape of a Levy distribution can be easily recognized in a log-log paper. It gives a straight line. See the picture below. That straight line in a log-log plot shows a power law (Levy pdf) for cardiac pulsation. For details see Liebovitch & Scheurle (2000).

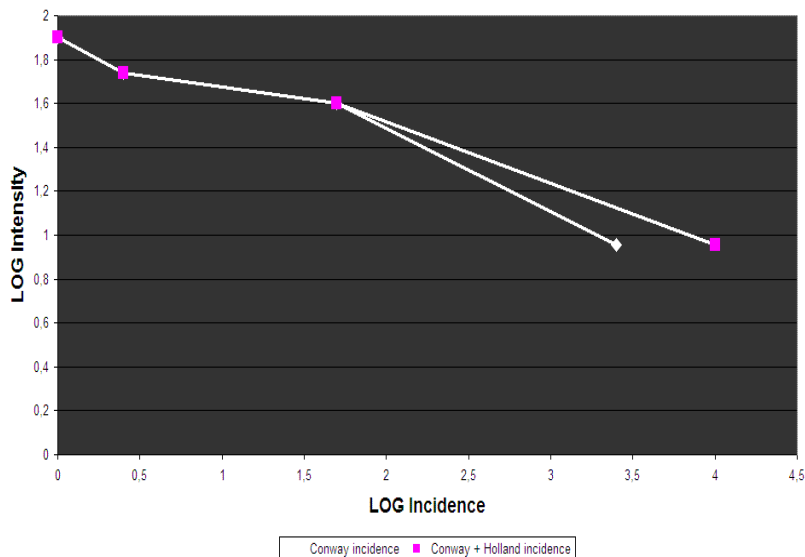


For a healthy heart, the movement needs to follow a Levy pdf. If not, probably we have a heart failure or

attack. So the "normal" is the Levy when we have a natural WILD distribution, as the biggest basin of attraction in the Universe for all stochastic processes and micro-processes is to Wild processes. Now the most important for us: The next figure shows the Levy curve for the spectrum of self-perception of gender raised by Torres (2007) presented at WPATH at the 20th Biannual Symposium in Chicago, 2007. For those who want to do Evidence Based Medicine - nothing better than start with the evidence that the probability distribution of the frequency spectrum of self-perception of gender follows a Levy pdf. How did we develop that Levy plot? Using the incidense data for Trans people in the USA by

Lynn Conway (2002) and Van Kesteren at al in Holland (1996) and Gendercare data through our MFX and FMX tests for intensity.

LOG LOG Incidence vs Intensity GV data plot



That is a pdf plot, considering intensity vs incidence (a power spectrum), in a log-log plot of thousands of data. The plot shows a multifractal Levy structure. Obviously we may develop better studies, considering better incidence vs intensity data, in the future.

## Consequences - A Drastic Perspective Change

Let's consider a typical transsexual MtF for example. The main consequence of what we considered above is, if the system was Gaussian, the condition of that transsexual would be that of a "normal" man (due to a "normal" penis) and the patient self-perception would be disordered (a GID as defined by DSM). But as the system is Levy alfa stable, the perspective drastically changes.

The system has naturally extremes, and the self-perception of these extremes are absolutely correct. Changing the statistic perspective – REALLY CORRECTING IT – we change drastically all the perspective for the perception and understanding of the phenomenon as a whole. A referential change in the Copernican sense, from the body (that was considered correct by Gauss and the mind disordered by a GID) to the mind/brain self-perception (that is correct, and the whole condition is extreme due to the nature of the system). So, if desired, the body need corrections – hormones and surgeries.

**The Levy perspective is scientifically and factually correct – based on the sure Wild variations and the transient system. Also causes are now more clear based on what we know about genes and hormones acting on the basal brain (Torres 2005, Freitas 1998).**

**All these facts requires a RE-THINKING of the concept of GID and disordered self-perception of gender by psychologists and psychiatrists, which is based on an "a priori" ideological consideration that the system is Gaussian – which surely is not the case.**

A distribution of Levy shows there are not normals nor DISORDEREDS - but commons/usuals, less commons/usuals and extremely unusuals or uncommons. That is the correct perspective to consider gender dysphoric called transsexuals.

## Wild Systems, Extreme Dangers

Extreme events may be VERY RARE, VERY STRONG AND VERY DANGEROUS! So the main evaluation question of extreme events is always – how **DANGEROUS** it is? If the event is dangerous - how may we **PREVENT** it? Or at least **WHAT MAY WE DO TO MINIMIZE THE**

DANGER? That is the way we do with all extreme events that are dangerous - as hurricanes, floods, earthquakes and extreme gender conditions.

Most systems follow Levy, but their extreme events do not trigger dangers. So our main question is: are **gender extreme conditions DANGEROUS?**

“A priori” we may say - **NO** - they are not **NECESSARILY** dangerous. Rarely they may be dangerous for the OWN PERSON if the family, “experts” and society helps instead to put difficulties. And they are not dangerous for others. Rarely real mental disorders trigger a gender dysphoria - and in these rare conditions – mental morbidities which trigger it may be controlled and not the gender condition. Then the mental health provider needs to be prepared to treat the related mental morbidity and not the gender condition - that we may not anticipate, preview or prevent - but which we may surely **minimize, mitigate and harmonize preparing the society to accept these natural but unusual extremes.**

To the vast majority of patients which shows no dangerous conditions we need to be fast and effective on our “diagnosis”, transitions and corrections, so even living an extreme condition triggered by nature, they will feel as they are – normals among normals - having the opportunity to live a normal life among normals, as soon as possible. Considering all we know now we may ask: do gender dysphorics necessarily need any psychological/psychiatric tutoring? **SURELY NOT!**

## Resume of a Web-based Minimum Procedure

The first thing it is necessary to do is to understand the patient and learn his or her life story, always by a patient-centered anamnesis, which can be developed through Web consultations. The anamnesis alone, however, does not furnish sufficient information to understand a patient’s reality. As we are talking about not mentally disordered self-perceptions, but natural spectra of healthy self-perceptions, we may measure it and find typologies we may statistically compare through the web. The measurement we do using our MFX and FMX scales. After we worked thousands of results, we devised a math criterion to differentiate between usuals/CD/TG/TS for MtF and FtM. We defined specific scales. We expressed the patient’s age, and proposed ages as critical inflection points for gender development. We plot a time-series for each scale that reflects the patient’s data for every period in life. The test result therefore consists of plots of some principal curves. To understand better, see details at Torres (2007; 2006b) and Kantz & Schreiber (2000) to understand the math. Based on the results of the detailed anamnesis and the supplemental information derived from the

MFX/FMX tests, we will have a very strong set of data about the patient's need to transition, to change his or her body through hormone therapy (HRT), and even whether the patient will one day need to undergo SRS[3].

## The Necessity of Psy “Screening”

However, with these two evaluation steps just described, we cannot be certain whether or not the patient might really need a psychotherapy. Therefore, as the third and final step of a Web UGC Diagnosis we administer the MMPI (Minnesota Multiphasic Personality Inventory)[4] and complementary tests. If the patient shows the possibility of serious mental problems, we suggest psychotherapy – face to face or e-based (Fraser 2009).

Otherwise, the only local assistance needed by the majority of our UGC TS/TG patients is laboratory blood tests, the purchase of HRT medications, and surgeries.

## Conclusion

Due to the fact that gender identity follows naturally a Wild alfa-stable Levy pdf, the correct scientific perspective is to consider the patient's self-perception healthy, and the situation extreme or at least naturally unusual.

So we may use some math tools to measure the system at a distance, and how the patient is characterized inside it. If the system was Gaussian, we would not be able to measure the mentally disordered (abnormal) self-perception AT A DISTANCE without a necessary psychotherapy. If it was a result of disordered mental condition, that web-based approach would not be EASILY feasible. But as it is not a Gaussian distribution but **SURELY** an alfa-stable Levy dynamic system, **we surely may measure the system at a distance, and the patient inside it.** That way we may help people at a distance. That way we may screen children in schools at a distance, to see if they will show potential unusual conditions. That way we may do a fast diagnosis through dynamic recognition at a distance, and fasten surgeries and HRT. That way we may help people with good knowledge and good science – XXIst century science, doing a good work at a distance. So I hope web-based methods will be supported by WPATH future SOCs, respecting who pioneered and developed it, as we started it at Gendercare some 10 years ago, since August 2001.



## Thanksgiving

We would like to thank Sonia John for her English language support.

## Notes

[1] in our opinion GID as gender identity DISORDER is an illusion that never exists. Our experience shows UGC due to a mental disorder is very rare and classifiable as GIDNOS (ICD-10th F.64.8)

[3] Gendercare web-based MFX and FMX tests at a distance is the best tool to improve the quality of sampling for gender variance research, among alive people. They provide the simplest, most objective and cost-effective solution to differentiate between TS, TG, and other alive individuals – at a distance.

[4] We utilize the CEPA-Centro Editor de Psicologia Aplicada, Ltda. version of the MMPI. CEPA owns the Brazilian copyright to publish the MMPI.

[5] We discuss RLE and our “butterfly strategy” at our website at [http://www.gendercare.com/testes/identidade/identidade2.html#\\_ednref5](http://www.gendercare.com/testes/identidade/identidade2.html#_ednref5)

## Abbreviations

CD- crossdresser; CNS-central nervous system; FMX- female to male unexpected Gendercare test; GID- gender identity disorder; GIDNOS- gender identity disorder not otherwise specified; HRT – hormone therapy; MFX- male to female unexpected Gendercare test; PDF-probability distribution function; RLE – real life experience; SRS- sex reassignment surgery; TG- transgender; TS- transsexual; UGC- unusual gender condition;

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