MASCULINITY AS AN IDENTITY AND AS A CLUSTER OF TRAITS

RENATA ZIEMINSKA

1 University of Szczecin, Department of Philosophy and Cognitive Science, ul. Krakowska 71, 71-017 Szczecin, Poland. ORCID: 0000-0002-4403-0987, Email: renata.zieminska@usz.edu.pl

ABSTRACT: The paper presents the concept of masculinity within the non-binary and multilayered model of gender/sex traits. Within that model, masculinity is not a simple idea, but rather is fragmented into many traits in diverse clusters. The experience of transgender men and men with intersex traits suggests that self-determined male gender identity is a mega trait that is sufficient for being a man. However, masculinity is not only psychological, as the content of the psychological feeling of being a man refers to social norms about how men should be and behave. And male coded traits are described as traits that frequently occur within the group of people identifying as men. Therefore, I claim that there are two interdependent ideas in the concept of masculinity: the self-determined male gender identity (first-person perspective) and a cluster of traits coded as male (third-person perspective). Within non-binary model the interplay between the two interdependent ideas allows to include borderline masculinities.

KEYWORDS: spectrum of masculinity, borderline masculinities, male gender identity, non-binary model of gender/sex

The aim of the paper is to present the concept of masculinity within the non-binary and multilayered model of gender/sex traits (Ziemińska 2018; 2021). When sex/gender traits are fragmented into many layers and their forms are expanded into spectra, there is a risk that the concept of masculinity will disappear. This paper is an attempt to look at how masculinity can function as a gender concept when we go beyond the sex/gender binary. The concept of femininity I have discussed in (Ziemińska 2021).
EXPANDING BEYOND THE SEX/GENDER BINARY

The concept of masculinity is traditionally opposite to the concept of femininity, but recently obtained knowledge regarding non-binary people (identifying as neither female nor male; Valentine 2016: 6), people with intersex traits (born with a combination of female and male body traits or traits which cannot be identified as either; see Davis 2015: 2), and transgender people (not identifying with the gender assigned to them at birth; Beemyn and Rankin 2011: 1) shows that the two concepts, interpreted as a simple dichotomy or binary divide, are not adequate to describe some people and the diversity of the human experience (Świder & Winiewski 2017; Dynarski 2016).

Surya Monro (2005) discusses the following three ways to expand beyond binary genders: the expansion of the male and female categories, elimination of gender categories, and gender pluralism. The first strategy is an expansion of the binary genders without creating a third category. The elasticity of the male and female categories enables the inclusion of gender-diverse people, such as intersex people living as male or female, trans men and trans women, masculine women, and feminine men. According to Monro, this strategy is progressive but fails to include people who are simply in between maleness and femaleness and/or identify with neither state, such as people with non-binary identities (Monro 2005: 36).

The second strategy is to eliminate all gender categories. Indeed, some scholars write about eliminating gender categories from official documents (Nicholas 2014), as there are other means to check identity (fingerprints, facial recognition, and retinal scans). I agree with Monro that the strategy of gender erasure could be unfair to many people who experience essential gender identity as strong and clear feeling of being a man or being a woman. Such essential gender identities are also adopted by some intersex and transgender people who are very attached to their identity. In some parts of the world gender identity is an important component of personal identity, especially for the social individual; “gender is a pervasive and fundamental social position that unifies and determines all other social positions” (Witt 2010: 19). Additionally, gaining civil rights for gender-diverse people requires named categories and identities (Monro 2005: 37).

The third approach, which was adopted by Monro, is gender pluralism, which is the theory that there are more genders than male and female, and that there is a multiplicity of genders. Masculinities, femininities and gender-diverse identities are overlapping spectra of many identities (Monro 2005: 38). The list encloses identities under both expanded masculinity and femininity and “nonbinaried gender identities” (Monro 2005: 23). Binary gender identification is permitted under Monro’s gender pluralism if it is not framed as being better than a third gender, multiple-gender, or gender-fluid (Monro 2015: 50).

However, Monro clarifies that the strategy of creating a third non-binary gender category is unacceptable to her. A third gender is one of the many possible gender identities within her pluralism, but she rejects a third category as a strategy to expand beyond the binaries (her strategy is pluralism). To justify this decision, Monro states that some intersex and transgender people have warned academics that they are not
in favor of three genders (Monro 2005: 35). Indeed, this view is clearly expressed by, for instance, the intersex activist Morgan Carpenter (2018: 491). Monro is also concerned about the ghettoization of non-binary people (Monro 2005: 41). However, some intersex and transgender people with non-binary gender identities fight for non-binary legislation (Viloria 2017; Bergman & Barker 2017).

In my view, there are some disadvantages to limitless gender pluralism from theoretical and legal perspectives. A limitless number of genders leads to the negation of gender as a useful theoretical and legal category (Bennett 2014, 861). Gender pluralism is close to the second strategy (eliminating gender altogether), and Monro (2019) sustaining gender pluralism seems to accept such elimination at least on the theoretical level because she accepts that gender categories can be used strategically by individuals.

In some recent papers, there are only two strategies discussed: third gender category or the abolishment of sex and gender registration entirely (Quinan et al. 2020: 3). Peter Cannoot and Mathias Decoster (2020) argue for the abolition of registration of gender/sex, rather than expanding gender markers to third non-binary markers. Male/female and even male/female/other are gender regimens with harmful effects. “Given sex/gender’s fluidity, variances, and socially constructed character, the law will never be able to reliably document it – just as it cannot do so for race, religion, sexual orientation, or political affiliation” (Cannoot & Decoster 2020: 47).

However, even if we manage to eliminate obligatory legal gender registration, the gender/sex concept will still be needed in theory to describe human traits, and it is still crucial for expanding beyond the binary. At present, gender identities are important for people, and some people identify as non-binary; therefore, the introduction of a non-binary gender category as the third option seems to be a useful improvement. The existence of people whose gender identity is self-described as non-binary, neutral, or both female and male is enough reason to establish the third category of gender. Let us assume that there are women, men and non-binary persons. Additionally, for theoretical reasons, it is useful to have a non-binary model of multilayered sex/gender traits.

A NON-BINARY MODEL OF GENDER/SEX TRAITS

In my other works (Ziemińska 2018; 2021), I have presented several versions of a non-binary and multilayered model of gender/sex traits. What is called “sex/gender” (in Polish płeć) is, in fact, a cluster of traits. In the English language, the cluster is presented as sharply divided into two parts: biological “sex” and social “gender”, but in fact, there are more parts/layers that constitute the cluster. There are at least eight layers: sex chromosomes, gonads and the hormones they produce, internal and external sex organs, secondary sex characteristics that appear in the adolescence period, gender identity, legal sex/gender, gender expression and others.

A good example of the incongruence between the sex layers, at least when we presuppose the binary model of sexes, is the case of Maria Patiño, a Spanish athlete who published her private medical records (Patiño 2005). Some of her sex traits were of
such a nature that they are presumed to be exclusively male (sex chromosomes and
gonads), and her other sex traits were presumably female. Chromosomes were the
basis for her disqualification from female sports competitions in 1985, but her exter-
nal sex traits are female, as is her gender identity. She is an example of a woman (I
presume female gender identity as the criterion of being a woman) with some intersex
traits. Patiño’s case is a good example to show that having male chromosomes and
male gonads is not enough to identify as a man and thus to be a man.

People with intersex traits have a combination of sex traits; some are culturally
coded as male, some are coded as female, while some of them are neither clearly fe-
male nor male. There are two sources of having traits that are neither male nor female.
The first is the combination of male and female traits, as in the case of Maria Patiño.
Second, some single traits can have a form that is neither female nor male, such as
having a gonad, ovotestis, with both ovarian and testicular tissue (Souter et al. 2007).

Therefore, an additional aspect of the model is that the sex/gender traits cannot
be divided into two binary exclusive forms: male or female. Each layer can deliver an
example of a sex trait that cannot be described by the binary concept. For instance, at
the chromosome layer, the chromosome patterns are in some cases neither 46,XY nor
46,XX but a mosaic 47,XXY or a chimeric 46,XX/46,XY. Therefore, sex chromosomes
are not good criteria for dividing people into two sex classes. At the gonadal layer in
some intersex cases, instead of testes or ovaries there are ovotestes with both testicu-
lar and ovarian tissue. At the internal sex organ layer, a person can have a hemi-uterus
and one seminal vesicle (Souter et al. 2007). At the external genital layer, a person can
have genitals that can be described as micropenis with a vagina (Pisarska-Krawczyk et
al. 2014). At the level of secondary sex characteristics, a person can have both breasts
and facial hair (BBC 2016).

Moving to the gender layers, at the layer of gender identity, there are persons with
non-binary gender identity, non-binary gender presentation, and who use non-bina-
ry pronouns they/their or others (Valentine 2016; Bergman & Barker 2017; Świder &
Winiewski 2017). In some countries, such as Australia, a citizen can have the legal
status of a person belonging to the third gender category (Bennett 2014; Carpenter
2018: 489; Quinan et al. 2020: 4). The existence of people whose gender identity is
self-described as non-binary, neutral or both female and male is enough reason to
establish the third category of gender. When gender identity is accepted as the most
important gender/sex trait, to be a non-binary person is to have a non-binary gender
identity (non-binary category as identity).

In this model of gender/sex traits, a person can have different clusters of traits, and
some of the clusters are neither female nor male, even if the classes are expanded into
spectra. To develop the theoretical model of sex/gender traits, the non-binary category
can be used in expanded technical meaning to describe not only gender identity but
any clusters of gender/sex traits that are neither female nor male (Ziemińska 2018;
2021)

However, it is important to avoid blurring non-binary gender identity with having
neither female nor male sex traits. It is known that most people with intersex traits
have binary gender identity (Schweizer et al. 2014) and that some endosex people (that
is, people who are not intersex) have non-binary gender identity (Valentine 2016).

**TWO IDEAS AND ONE DEFINITION OF MASCULINITY**

The fragmentation of the concept of masculinity within the non-binary and multilayered model does not negate its existence. Male gender identity plays an important role in the unity of the concept.

The relevance of self-determined gender identity was revealed by the experience of misgendering transgender and intersex people (Beemyn & Rankin 2011; Carpenter 2018). Misgendering is defined as failing to treat people as members of the gender with which they identify. Misgendering causes psychological harm (shame, anxiety, and depression), moral harm (undermining of self-respect), and political harm (oppression and domination) (Jenkins 2018: 4). People have realized that felt gender identity is crucial for personal integrity and social functioning. If so, gender identity deserves to be respected regardless of what other sex and gender traits a person has. I agree that we live in the age of gender self-determination (Cannoot & Decoster 2020: 27), and I assume the principle of self-determination of one’s own gender and respecting felt gender identity of others.

Katharine Jenkins (2016) writes about gender as class and gender as identity as twin concepts. She defines being a woman as belonging to a particular class “on the basis of actual or imagined bodily features presumed to be evidence of a female’s role in biological reproduction” (Jenkins 2016: 408). And in her theory gender identity is characterized as an “internal map” to guide a person classed to a particular gender through social life. This map is the metaphor of gender identity. Jenkins advocates “using the term ‘woman’ to express the concept of having a female gender identity” (Jenkins 2016: 421) as this concept allows us to respect the gender identifications of trans people.

However, Jenkins (2018) makes further analysis of the concept of gender identity and presents two accounts of it: first, as self-identification by the act of expressing a gender identity or at least the disposition to do it; second, as the experience that social norms associated with the idea of being a woman in my social context are relevant to me (norms-relevant account).

The first account presents gender identity as the internal, psychological result of mysterious biological traits; there is no hint to some external, socially visible properties that underlie such self-identification. The second account openly determines gender identity as dependent on social norms about how women, men, or non-binary people should be and should behave.

The first theory is critical to current gender norms and easily introduces a non-binary identity felt by some people. According to this theory, a person’s declaration of their own gender identity should be treated as authoritative, as people cannot be mistaken about their own gender identity at a particular time. This theory gives privileged access to one’s own gender identity.

The second theory, accepted by Jenkins (and by me), presents gender identity as an embodied tacit map of internalized norms taken from society. The feeling of being a
woman is to experience that some norms are relevant for me, even if sometimes I have violated one, or even if I do not wish to comply with them.

The experience of social norms can be complicated, unclear and in flux. In the case of a trans man in the moment of beginning social transition and presenting himself externally as a man, the internal map socialized throughout life may be different from the conscious gender identity. Socialization is difficult to erase. Jenkins (2018) presents non-binary gender identities using the metaphor of radio channels. I can be tuned to a woman channel and later to a man channel; I can switch back and forth between them or simultaneously play the two, or I can play no channel at all.

Let us apply Jenkins’ gender theory to masculinity. To be a man is first of all to have a self-determined male gender identity. However, the idea of masculinity as belonging to a class or as having a cluster of traits is still important for two reasons. First, there is a need to explain the content of felt maleness and masculinity. This identity is closely connected with the social pattern or social imagination of what it means to be a man (otherwise it would be an empty or unclear feeling). Therefore, this pattern needs to be described. Being classed as a man in a culture is often based on social norms of male body, behavior and, at the very roots, on an imagined role in biological reproduction (I argue against the binary division of reproductive roles in Ziemińska 2021). Second, the idea of masculinity as feeling cannot be applied to newborns and to people who are silent or unconscious. It is also hardly applicable to the theoretical description of the class of men. Even if we respect felt gender identity, we also need a description of men as a class to understand the context of felt male identity. So, gender identity is linked to gender as a social norm.

Indeed, the internal feeling of being a man is often connected with the desire of being treated socially as a man. The desire makes people express in masculine way, for instance, by wearing clothes and using language that are culturally coded as male. There is a spectrum of patterns of male expression and behavior (Connell 2005). So, male identity from the first-person perspective is often, but not always, connected with having some male-coded body traits and playing some male social roles (the third-person perspective).

I think that self-determined male gender identity is masculinity from the first-person perspective and that the cluster of male traits is masculinity from the third-person perspective. I would like to emphasize that the two perspectives are not opposite, but complementary. General knowledge of the world can be divided into first-person knowledge and third-person knowledge. Some information we obtain from our own internal experience, and some we acquire by authority of other people who create social knowledge of the external world.

Therefore, the two concepts of masculinity from the first-person perspective and third-person perspective are complementary: male gender identity deserves to be respected regardless of what other sex and gender traits a person has, but the idea of masculinity as self-determined identity takes it content from social norms of masculinity and cannot be applied to newborns and to people who are silent or unconscious. There is an interdependence and mutual reinforcement here: male gender identity is described by a cluster of male traits/norms, and the male traits/norms are described as...
the traits possessed by the group of people who identify as male.

I suggest the following definition of being a man:

(M) S is a man if S is a human being with enough male traits, and the trait of having self-determined male gender identity is the sufficient but not necessary condition.

To be a man, it is enough to have male gender identity or to have a cluster of male-coded traits (a newborn is assigned male without declaring gender identity, and a transgender child declaring being a boy can have no male-coded traits).

**BORDERLINE MASCULINITIES**

The non-binary model of gender/sex traits with such flexible definition of masculinity is a useful tool to show borderline masculinities, whether it is an identity or a cluster of traits.

There are stereotypical male identities answering typical expectations for men in a particular culture, whether it is the past culture or the present one. There are also borderline male identities when the identity was discovered after some years of struggle with female socialization or interrupted by a short period of female transition as a child. A person with male-dominating identity combined with part-time female identity and cross-dressing is on the borderline of male and non-binary identity. “Male-bodied cross-dressers frequently see themselves as having a second, female self that is separate from their male gender identity. (...) In contrast, genderqueer individuals identify (...) as neither male nor female but as a different gender altogether” (Beemyn & Rankin 2011: 147).

The borderline masculinities are also visible when we talk about other layers of gender traits: legal gender, gender expression or the gender of language. A person can be assigned male at birth or assigned male after some years of female legal gender. There are fixed patterns of male naming and pronouns (he, his), but many aspects of male gender expression and external appearance (body shape, deep voice, facial hair) exist in grades.

The criteria for masculinity are also not internal and intimate traits, such as 46,XY chromosomes, testes or a penis. No anatomical part or fixed cluster of them is necessary or sufficient for being a man. Borderline masculinities at the sex layers are diverse clusters of male traits.

Good examples are men with Klinefelter syndrome. This group is often included in the group of intersex people because of atypical sex chromosomes (47,XXY and variant karyotypes) and body traits (sometimes breast development, scant facial hair, high voice). Catherine Harper writes about her interesting correspondence with the Klinefelter’s Syndrome Association in the UK. The association does not accept that Klinefelter’s Syndrome is an intersex condition and states that “these with Klinefelter’s Syndrome are born male” (Harper 2007: 156). The association emphasizes that people with the syndrome who do not identify male are “the exception rather than the norm” (ibidem). The reason for this reaction is that most members of the association identify
as male, and they are in danger of misgendering because of some atypical body traits. Therefore, the members call for their male gender identities to be respected. The explanation of such reaction is that the intersex condition was sometimes treated as an identity of being between a woman and a man. Today, we have two separate concepts: the concept of non-binary gender identity and the concept of intersex body traits. The distinction between sex and gender in such cases is very useful.

Sara Davidmann gives an example of transgender masculinity. A person called Robert was assigned female at birth but identifies as male, rather than female, and uses the male pronouns he/his. He has undergone top surgery and has testosterone injections to have facial and body hair, but he has no desire to change his genitalia. He lives as a man in society, and he is seen as a man (Davidmann 2010: 196). Robert’s case contradicts the idea that male genitalia are necessary for being a man and that male gender identity is necessarily connected with the desire to have one.

Borderline masculinities are reason to think that self-determined male gender identity is enough to class a person as a man. It seems to be the best solution to the problem of which male trait is the most important. Felt gender identity is a special trait self-determined from a first-person perspective, but it can be expressed to external third-person observers who can register it as a male trait. This criterion respects transgender men, men with intersex traits, and cis and endosex men who have undergone surgery for some male traits.

CONCLUSIONS

There are two basic ideas of masculinity, male gender identity self-determined from the first-person perspective and a cluster of male-coded traits described from the third-person perspective. Male gender identity is sufficient for classifying a person as a man, but being a man is not only a psychological issue. The content of the psychological feeling of being a man refers to the pattern of male traits, at both sex and gender layers, that often but not always occur within the group of people classed as men. Therefore, male gender identity and a cluster of male/masculine traits are interdependent and complementary. S is a man if S is a human being with enough male traits, and the trait of having self-determined male gender identity is the sufficient but not necessary condition. The fragmentation of the concept of masculinity within the non-binary and multilayered model does not negate its existence but makes it clear that it has blurry boundaries overlapping with the spectrum of femininity and the spectrum of the non-binary. The flexible concept of masculinity expressed in definition (M) grips not only the cis and endosex persons but allows to include some borderline male identities with some female, intersex or non-binary traits.

FUNDING: This work was supported by the National Science Center, Poland [grant number 2014/15/B/HS1/03672].

CONFLICT OF INTEREST: The author declares no conflict of interest.
REFERENCES

Beemyn, Genny, and Susan Rankin. 2011. The Lives of Transgender People. New York: Columbia University Press.

Bergman, S. Bear, and Meg-John Barker. 2017. “Non-binary activism.” Pp. 31–51 in Genderqueer and non-binary genders, edited by Ch. Richards et al. London: Palgrave. Macmillan.

Bennett, Theodore. 2014. “No man’s land: Non-binary sex identification in Australian law and policy.” UNSW Law Journal 37(3): 847–873.

BBC. 2016. "At 12 I grew a beard and had a period." Retrieved April 22, 2016 (http://www.bbc.com/news/magazine-36092431?SThisFB).

Cannoot, Pieter & Mattias Decoster. 2020. “The Abolition of Sex/Gender Registration in the Age of Gender Self-Determination: An Interdisciplinary, Queer, Feminist and Human Rights Analysis.” International Journal of Gender, Sexuality and Law 1(1): 26-55. Retrieved August 10, 2020 (https://www.northumbriajournals.co.uk/index.php/IJGSL/article/view/998).

Carpenter, Morgan. 2018. “The ‘Normalization’ of Intersex Bodies and ‘Othering’ of Intersex Identities in Australia.” Bioethical Inquiry 15: 487–495.

Connell, R. W. 2005. Masculinities. Cambridge: Polity Press.

Davidmann, Sara. 2010. “Beyond Borders. Lived Experience of Atypically Gendered Transsexual People.” Pp. 186–203 in Transgender Identities. Towards a Social Analysis of Gender Diversity, edited by S. Hines & T. Sanger. New York: Routledge.

Davis, Georgiann. 2015. Contesting Intersex. The Dubious Diagnosis. New York: New York University Press.

Dynarski, Wiktor. 2016. “Trzy opcje to za mało. Różnorodność transpłciowych tożsamości w badaniach społecznych.” Pp. 21–37 in Poza schematem. Społeczny konstrukt płci i seksualności, edited by U. Kluczyńska et al. Gdańsk: Wydawnictwo UG.

Harper, Catherine. 2007. Intersex. Oxford-New York: Berg.

Jenkins, Katharine. 2016. “Amelioration and Inclusion: Gender Identity and the Concept of Woman.” Ethics 126: 394–421.

Jenkins, Katharine. 2018. “Toward an Account of Gender Identity.” Ergo. An Open Access Journal of Philosophy 5(27): 713–744. Retrieved August 10, 2020 (http://dx.doi.org/10.3998/ergo.12405314.0005.027).

Monro, Surya. 2005. Gender Politics: Activism, Citizenship and Sexual Diversity. London: Pluto Press.

Monro, Surya. 2015. Bisexuality. Identity, Politics, and Theories. New York: Palgrave Macmillan.

Monro, Surya. 2019, “Non-binary and genderqueer: An overview of the field.” International Journal of Transgenderism 20(2-3): 126–131.

Nicholas, Lucy. 2014. Queer post-gender ethics. The shape of selves to come. New York: Palgrave Macmillan.

Patiño, María José Martínez. 2005. “Personal Account. A women tried and tested.” The Lancet 366(538). Retrieved August 10, 2020 (https://www.thelancet.com/jour-
Pisarska-Krawczyk, Magdalena, Grażyna Jarząbek-Bielecka, Małgorzata Mızgier Amanda Rewers, Joanna Waligórka-Stachura, Rafał Czepczyński, Elżbieta So-wińska-Przepiera, & Witold Kędzia. 2014. „Nietypowo ukształtowane narządy płciowe lub zaburzenia rozwoju płci. Aspekty medyczne i etyczne.” [Ambiguous Genitalia or Disorders of Sex Development. Medical and Ethical Aspects] Current Gynecological Oncology 12(4): 259–270.

Quinan, C. L., Verena Molitor, Marjolein van den Brink, & Tatiana Zimenkova. 2020. “Framing gender identity registration amidst national and international developments: Introduction to ‘Bodies, identities, and gender regimes: Human rights and legal aspects of gender identity registration.” International Journal of Gender, Sexuality and Law 1(1): 1–25. Retrieved August 10, 2020 (https://www.northumbriaicournals.co.uk/index.php/IJGSL/article/view/971).

Schweizer, Katinka, Franziska Brunner, Christina Handford, & Hertha Richter-Appelt. 2014. “Gender Experience and Satisfaction With Gender Allocation in Adults with Diverse Intersex Conditions (Divergences of Sex Development, DSD).” Psychology & Sexuality 5(1): 56–82.

Souter, Vivienne, Melissa Parisi, Dale Nyholt, Raj Kapur, Anjali Henders, Kent Opheim, Daniel Gunther et al. 2007. “A case of true hermaphroditism reveals an unusual mechanism of twinning.” Human Genetics 121(2): 179-85. DOI: 10.1007/s00439-006-0279-x

Świder, Magdalena & Mikołaj Winiewski. 2017. Situation of LGBT Persons in Poland. 2015-2016 Report. Transl. Agnieszka Zieminska. Warszawa: KPH. Retrieved Jul 10, 2019 (https://kph.org.pl/wp-content/uploads/2019/07/Situation-of-LGBT-Persons-in-Poland-10.07.pdf).

Valentine, Vic. 2016. Non-binary people’s experiences in the UK. Report, Scottish Trans Alliance, UK. Retrieved Nov 11, 2017 (http://www.scottishtrans.org/non-binary/).

Viloria, Hida. 2017. Born Both. An Intersex Life New York: Hachette Books.

Witt, Charlotte. 2011. The Metaphysics of Gender. Oxford, New York: Oxford University Press.

Ziemińska, Renata. 2018. Niebinarne i wielowarstwowe pojęcie płci. Próba inkluzji danych o osobach interpłciowych i niebinarnych. Warszawa: Wydawnictwo Naukowe PWN. Ziemińska, Renata. 2021. “Toward a Nonbinary Model of Gender/Sex Traits.” Hypatia. A Journal of Feminist Philosophy (forthcoming).
BIOGRAPHICAL NOTE

Renata Zieminska is professor of humanities at the Institute of Philosophy and Cognitive Science, University of Szczecin.

OPEN ACCESS: This article is distributed under the terms of the Creative Commons Attribution Non-commercial License (CC BY-NC 4.0) which permits any non-commercial use, and reproduction in any medium, provided the original author(s) and source are credited.

ARTICLE HISTORY: Received 2020-09-30 / Accepted 2021-02-03
