

More than just hormones

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General summary: More than just hormones – Mathilde Kennis

Transgender people experience an incongruence between their gender identity and their sex assigned at birth. Some, but not all transgender individuals might choose to alleviate this incongruence by gender affirming medical treatment (GAMT), including gender affirming hormone treatment (GAHT) and gender affirming surgery (GAS). It might seem obvious that factors that can play a role in a transgender person's life, such as gender dysphoria and hormone treatment, affect their sexuality, but not much is known yet about sexual well-being in this group. Most knowledge about this topic has been acquired via research applying a rather medical and functional focus. Much more needs to be known about psychological aspects, since they also make up a big part of someone's sexual well-being.

This thesis describes studies using different methodologies in order to provide some puzzle pieces to do the multidimensionality of sexuality in transgender people justice, and to better know how to support this group. Chapter 2 describes the result of a questionnaire study focusing on the Sexual Self-Concept (SSC). A SSC is a multidimensional phenomenon that describes how someone sees themselves as a sexual person. For instance, you can see yourself as an assertive sexual being, or as a shy one; as someone who is easily aroused, or as someone who requires more effort to get in the mood; as someone who is still figuring out how to sexually engage with a partner, or as someone who knows very well how to behave between the sheets. We compared the SSCs between transgender and cisgender people, and found that, in general, transgender individuals have a more negative SSC. They scored lower on sexual esteem related to behavior, body perception, conduct, and attractiveness, and sexual attitudes related to arousal. The transgender group also scored higher than the cisgender group on sexual attitudes related to anxiety and commitment. There were also SSC components that did not show group differences, namely sexual attitudes related to exploration, and sexual self-efficacy related to being resistive, precautions, and assertiveness. We also found that the SSC components of sexual esteem related to body perception, conduct, and attractiveness, and sexual attitudes related to anxiety were associated with gender dysphoria in the transgender sample. We further showed that these relationships are mediated by discrepancies between who one thinks they are as a sexual person compared to who one wants to be as a sexual person; such discrepancies were larger in the transgender compared to cisgender group. This suggests that addressing SSC discrepancies (for instance when it is difficult to target feelings of gender dysphoria) might improve sexual esteem and relieve sexual anxiety in binary transgender individuals.

While most studies on sexual well-being in transgender people focus on binary identifying individuals, we aimed to also include people who do not identify within the gender binary of man-woman. Chapter 3 described a first quantitative study investigating sexual well-being in non-binary/genderqueer (NBGQ) transgender individuals. While NBGQ participants scored lower on gender dysphoria than binary transgender participants, the two groups did not differ on sexual esteem, SSC discrepancies, or sexual satisfaction. Regarding general mental well-being, the two groups showed no differences either, showing similar scores on anxiety, depression, and general life satisfaction. The only sexual variable on which NBGQ participants scored lower than binary transgender participants, was transgender specific body worries. This is the first study to show that, while NBGQ and binary transgender individuals face unique challenges, they nevertheless mostly show similar struggles when it comes to sexual well-being.

The association between GAMT desire and sexual well-being was addressed in Chapter 4. I questioned both binary and non-binary transgender individuals about their GAMT desire, treatment motives, general well-being, and sexual well-being, and addressed similarities and differences between the two groups. Binary transgender individuals more often had a history of GAHT and GAS compared to NBGQ individuals, and they also more often reported a desire for GAHT. Reported desire for GAS did not differ between the two groups, which was mostly driven by a frequent desire for mastectomy in the NBGQ group. In terms of wanting GAMT, the two groups reported similar treatment motives, mostly related to body/gender incongruence and gender affirmation. Those who were not planning any GAMT, however, reported different reasons for this: in the NBGQ this was mostly due to their (non-binary) gender identity, and in the binary group this was mostly due to fear of medical complications. Importantly, the majority of both groups reported an unfulfilled treatment desire, which was related to lower general life satisfaction and sexual satisfaction, more anxiety and transgender-specific body image worries, and larger SSC discrepancies.

In order to collect more ecologically valid data regarding sexual well-being in transgender individuals, we conducted a diary study, which is reported in Chapter 5. This study is unique in the research field of sexuality in transgender people, because we followed a sample of binary transgender and cisgender individuals for a period of 21 days, mapping their sexual behavior, sexual esteem, and body image from day to day. This allowed the investigation of temporal relations between these variables, and differences herein between the two groups. In transgender individuals, intimacy predicted sexual esteem; sexual openness predicted sexual esteem and body image; and sexual esteem predicted intimacy, masturbation, and sexual openness on the daily level. These daily relationships did not differ in cisgender individuals. Furthermore, we found no differences in daily sexual behavior, but the transgender groups did score lower on daily sexual esteem and body image than cisgender individuals. This study suggests that sexual esteem might be a more important determinant of sexual behavior in transgender individuals than body image. It also indicates that while transgender and cisgender people might differ on certain variables on the between-subject level (for instance, lower sexual esteem and body image in transgender people), the within-subject relations between these variables and sexual behavior appeared similar between the two groups.

Contrary to the other empirical chapters, Chapter 6 presented the results of a qualitative study. For the final empirical chapter, we planned to include a neuroimaging study with transgender participants. In order to receive feedback from the transgender community on such a study design, we performed a focus group study, which is reported in Chapter 6. In this study, we asked transgender participants about their opinions concerning brain research with their community. Thematic analyses revealed that these opinions are layered and nuanced, presenting both negative and positive attitudes. Negative attitudes were mostly related to concerns regarding stigmatization (e.g., pathologizing language, or study results contributing to transphobic narratives) or a possible decrease in GAMT access (e.g., brain scans becoming part of a diagnostic process needed to acquire GAMT). Positive attitudes were mostly related to gaining knowledge about the effects of GAHT on the brain, and to validations of transgender identities. Furthermore, participants phrased recommendations for researchers working in this field, and most of these recommendations were in line with standard research practices. This study offers a unique scientific self-reflection, addressing the sometimes tense relationship between (neuro)scientific and transgender communities. I carefully conclude that transgender individuals would appreciate neuroscientific studies

regarding their identities, but that they are currently worried how results from such studies might play out in the 'real world', given the current societal context that still poses many challenges for this community.

This brings us to Chapter 7, presenting the results from a neuroimaging study assessing the behavioral component of sexual inhibition and the relation between its neural underpinnings and testosterone. The study included 33 transgender participants (of whom most were receiving GAHT) and 34 cisgender participants, who performed an Approach Avoidance Task (AAT) in a 3T MRI scanner. This task assesses the motivational/behavioral processes underlying sexual inhibition, and was found to show brain activations in our sample consistent with previous literature regarding general and sexual inhibition. Cisgender and transgender participants showed no behavioral differences (in terms of reaction times and number of mistakes) on the task. There were slight differences, however, in which brain regions they recruited during the various conditions of the task. For instance, there were group differences in regions involved in decision making processes (left middle temporal gyrus) and sexual response inhibition (right anterior cingulate cortex and left inferior parietal lobule). As the transgender and cisgender groups seemed to arrive at similar behavioral outcomes via slightly different neurobiological routes (with the transgender group recruiting brain regions related to decision making, contrary to the cisgender group), this might indicate that approaching and avoiding sexual stimuli might have different meanings for the two groups. When further investigating whether task activity in these regions was associated with testosterone levels, we found no significant results. However, brain activity during the approach of sexual stimuli was positively correlated with testosterone levels in the right claustrum in the transgender group. The claustrum is associated with sexual arousal, indicating that testosterone modulates a more aroused response in transgender participants when approaching sexual stimuli. Overall, both the behavioral and neurobiological results point to only few differences with regards to the approach and avoidance of sexual stimuli between transgender and cisgender individuals. Furthermore, in the light of GAHT, individuals receiving or considering this therapy should not expect a great influence of altering testosterone levels in itself on their behavioral sexual inhibition levels or its neurobiological underpinnings. Changes in sexual well-being and behavior in relation to GAHT previously reported are more likely to rely on other factors; most probably an interplay of biological, psychological, and social variables.