

HAPPINESS IN TRANSGENDER PEOPLE

A research-synthesis using an on-line findings-archive¹

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ABSTRACT

Background: A considerable minority of humans does not feel comfortable in their natal gender and part of these people suffer 'gender dysphoria'. Today, these 'transgender' people have several options to live more in accordance to their experienced gender identity by a) changing their social self (gender expression), such as in changing their name and/or b) changing their body, using medical sex-reassignment. This faces them with the choice whether or not to use such options and in that context a question is whether it will make them happier or not.

Objectives: We seek answers to the following questions: 1) How happy are transgender people? 2) Are transgender people who made a change happier than the ones who did not? 3) How happy are transgender people who opted for particular ways for living in more accordance to their experienced gender identity, medical as well as non-medical ways. 4) Did they become happier after the gender transition? 5) What kinds of people profit most and least from a gender transition happiness wise? 6) In what conditions are transgender people the most and least happy, e.g. in what countries and occupations?

Method: We took stock of the available research and found 19 reports of studies on happiness in transgender people, which together yielded 41 findings. These findings were entered in an on-line 'findings-archive', the World Database of Happiness. Each finding is described in a standardized format on a separate 'findings page' with a unique internet address. We use links to these on-line finding pages, which allows us to summarize the main trends in the findings in a few tabular schemes

Results: In contemporary western nations, the average happiness of trans people is around neutral and about 20% lower than among their compatriots. The spread

¹ Parts of this text are taken from earlier publications by Veenhoven, in particular on the concept of happiness (Veenhoven 2000) and on the method of research synthesis used in this paper (Veenhoven 2020a and b).

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around that mean is high, which means that some transgender people are quite happy and some unhappy.

There is almost no research on the effects on happiness of social gender-transitions only. Almost all the findings concern medical sex-reassignment, which is sought by a minority of transgender people. This research synthesis shows that sex-reassignment has made most of these 'transsexuals' happier, female to male transsexuals more than male to female. The happiness of all transgender people depends much on social acceptance.

Keywords: transgender, sex-reassignment, happiness, research synthesis

1 INTRODUCTION

All over the world there are people who feel a discrepancy between their sex assigned at birth on the basis of anatomic indicators and the gender they identify with later. Today, these people are called 'transgender', but the pattern has been named by different terms throughout history. The people who underwent sex reassignment surgery were first referred to as 'transsexual'. As it was seen as a mental illness, the matching diagnosis was 'gender identity disorder'. Today, DSM-5 uses the more neutral term 'gender dysphoria' for the people who experience significant distress as a result of being a transgender. A more positive and inclusive way to describe the experiences of all transgender people is with the term 'gender incongruence'. 'Gender variance' is sometimes used to refer to gender incongruent people who do not experience distress as a result of their gender incongruence (Beek 2016).

1.1 Prevalence of gender ambivalence, gender incongruence and gender dysphoria

A recent study examined the prevalence of two kinds of transgenderism in a population-based survey among 1832 persons in Flanders, Belgium. *Gender ambivalence* was defined as identifying equally with the other sex as with the sex assigned at birth and was present in 2.2 % of male and 1.9 % of female participants (here 'male' and 'female' refer to the sex that the participants were assigned at birth). *Gender incongruence* was defined as "identifying stronger with the other sex than with the sex assigned at birth" and was found in 0.7 % of assigned males and 0.6 % of assigned females (VanCaenegem et al. 2015).

A similar survey study in the Netherlands observed *gender ambivalence* in 4.6 % of the males and 3.2 % of the females and *gender incongruence* in 1.1 % of the males and 0.8 % of the females. Prevalence of *gender dysphoria*, defined as incongruence combined with dislike of one's body and wish for medical treatment, was estimated 0,6% for assigned males and 0,2% for assigned females (Kuyper & Wijzen 2014).

These small percentages denote a lot of people; 0,4% gender dysphoria in the population means that some 18 million Europeans suffer from this condition. As yet it is largely unclear how rates vary across contemporary nations, but it is beyond doubt that the phenomenon is universal.

1.2 Ways to deal with gender dysphoria

For long, ways to deal with gender dysphoria or gender incongruence were either bear it, often combined with concealment, or try to live according to one's transgender as far as society permits. An example of a socially accepted way of dealing with gender dysphoria is that of the Hijra in South Asia, who have a specific social role in their communities as performers (Wikipedia 2020). Today, gender dysphoric people have more options, at least in most of the modern nations, where freedom of choice is high and information about gender dysphoria is widely available.

Social transition: Transgender people can *behave* like the desired gender, such as in dressing and role taking and by changing their name. Though not always welcomed, this is not forbidden. In some countries, transgender people can also change their *civil status*.

Medical transition: Next to these social and psychological transitions, it is now also possible to change one's body using hormone treatment and surgery. This is called *sex reassignment therapy*. This option is increasingly used; 'gender clinics' exist in most modern nations and applications for treatment have risen substantially (Wiepjes et.al 2018). Still, only a fraction of the gender-dysphoric people reverts to this medical option; a recent meta-analysis of 12 clinical studies resulted in an estimate of 0,005% of the population, 0,007% for trans-women and 0,003% for trans-men. Time-analysis found an increase in reported prevalence over the last 50 year (Arcelus et al. 2015).

1.3 Information demand

These new possibilities for gender transition face gender dysphoric people with the choice to use these possibilities or not. To make an informed decision, they will want to know how fellow sufferers have fared, who in the past, have chosen for a particular kind of gender-transition or not.

In that context, they will not only welcome information about specific outcomes, such as social acceptance and sexual function, but also about effects on their overall quality of life. Next to information on average effects of gender transition, gender dysphoric people will want to know how this change has worked out on people like them, for instance whether the quality of life has improved or declined among middle aged married transgender people with children.

This information is the most required for gender dysphoric people who consider to undergo sex-reassignment therapy. Since that kind of transition is both very demanding and irreversible, careful deliberation is needed and typically required for entering treatment.

Information about the effect of gender transition on the overall quality of life is also required for the professionals involved in the treatment of gender dysphoria, in particular when decision making about sex-reassignment therapy is involved, since part of their work is filtering out people who are likely to get from the frying pan into the fire.

1.4 Earlier research on well-being of transgender people

Above we distinguished between two ways to deal with gender dysphoria: 'social gender transition' and 'physical sex-reassignment'. The latter way has attracted more attention of researchers than the former.

Social gender transition has mainly been studied from an anthropological perspective with a focus on deviance and sexuality, such as the study of transgender

prostitutes by Sausa et. al (2007). Wellbeing is no great issue in this strand of research and seldom measured quantitatively. Quantitative data on prevalence of gender deviance is found in some survey studies on sexual behavior (e.g. VanCaenegem et al. 2015) and quality of life (e.g. Downing & Przedworski 2018), but with little attention given to effects on subjective wellbeing, as we will see in section 4.2.

Sex-reassignment therapy has been studied since the first treatments in the early 1900s, among other things to justify this debated treatment. Wellbeing is a main outcome variable in this medical effect research.

The first strand of research on outcomes of medical sex-reassignment draws on clinical samples of patients of gender-centers in hospitals, who were followed after treatment. The focus of that initial research is on negatives, mental complains, depression in particular, social rejection, remorse and suicide.

Since the 2000s, there is a growing stream of research on positive outcomes. Part of the studies deal with specific positive outcomes, such as the strengths of transgender identity (Schulman et al 2017) and part focusses on the overall quality of life. Most of the latter studies use measures of health-related quality of such as the SF36 (Ware 1993) and the WHOQOL100 (2020). A recent review of this research is found with (Weinforth et al 2019), who conclude that “The available study data show that sex-reassignment surgery has a positive effect on partial aspects—such as mental health/wellbeing, sexuality, and life satisfaction—as well as on quality of life overall”.

In this line of research on the overall quality of life of transgenders, there is also an increasing number of studies that included measures of ‘happiness’, which concept we will discuss in more detail in section 2.2. In this research synthesis we focus on this latter outcome variable.

1.5 Why focus on happiness

There are five reasons to focus on happiness in assessing the effect of gender transition on the quality of life.

- The public understanding of what ‘happiness’ means will be higher than of an ‘quality of life’ index. Since we produce this research for facilitating informed choice, a clear meaning is to be preferred.
- Happiness is a more distinct concept that ‘quality of life’ indeed, as we will see in section 2.2.1 and also well measurable with single questions, as we will see in section 2.2.3.
- This conceptual clarity and subsequent measurability, provide the comparability required for meaningful research synthesis. There is no point in synthesizing apples and oranges.
- On a closer look, current indexes of quality of life suffer theoretical flaws, as will be discussed in more detail in section 2.2.2.
- Looking at the effect of sex reassignment on happiness fits the ‘utilitarian’ ethic that the best choice is what results in the greatest happiness for the greatest number (Layard 2010) a classic ethic that is gaining ground these days, also in

medical ethics (Mandal et al 2016).

1.6 Research questions

In this study we seek answers to the following questions.

- 1) How happy are transgender people on average?
 - a. How happy are these people absolutely?
 - b. How happy are they relative to otherwise comparable people?
- 2) How happy are transgender people who opted not to change their situation?
- 3) How happy are transgender people who engaged social gender transition?
- 4) How happy are transgender people who opted for physical sex-reassignment?
 - a. Did physical sex-reassignment make these people happier?
 - b. What treatments affected these transsexuals most/least?
 - c. What kinds of people profited most/least from sex-reassignment?
- 5) In what conditions are transgender people most/least happy?

1.7 Approach

We explored answers to these questions by taking stock of the findings obtained from quantitative studies on the happiness of transgenders.

We focussed on happiness in the sense of 'life-satisfaction'. In section 2.2 we will expand on this definition and show how this concept differs from other notions of wellbeing. To our knowledge, the research literature on this subject has not been reviewed with this specific definition in mind.

We applied a new technique for research reviewing that takes advantage of an online findings archive, the World Database of Happiness (Veenhoven 2020a), which allowed us to present a lot of findings in a few easy to oversee tabular schemes, while providing the reader access to much detail. We present the findings in a format in which the results of future research can easily be included, thus allowing for continuous accumulation of knowledge on this subject.

1.8 Structure of the paper

The remainder of this paper is organized as follows. We define the key concepts in section 2. Next, we describe the new review technique we used in more detail: how the available research findings were gathered and how these are presented in section 3. Then we discuss what answers the available findings have provided to our research questions in section 4. We discuss the available findings in section 5 and draw conclusions in section 6.

2 CONCEPTS and MEASURES

The words 'transgender' and 'happiness' are both used for different meanings. A fruitful research synthesis must therefore start with clear definitions and selection of appropriate measures on that basis.

2.1 Transgender

The term 'transsexual', which was first used in the 1920s for the first people who had undergone a physical sex-reassignment. In the 1960s the term 'transgender' came into use to denote wider ways to deal with experienced gender incongruence. A history of terminology on this matter is given in the Wikipedia lemma 'Transsexual, Terminology'.

2.1.1 Terminology

We follow the current use of the word and define *transgender people* broadly as: people who experience incongruence between their sex as assigned at birth and their experienced gender identity. People who do not experience gender incongruence are referred to as *cisgender*.

A problem with this broad use of the word 'transgender' is that it also applies to gender incongruent people who keep living as their assigned gender, such as people who would want to transition, but decide to live with the discomfort for ideological or practical reasons. A related problem is that some of these people cope with defensive denial and are therefore not fully aware of the experienced incongruence.

Actual gender transition may involve a change in gender expression, possibly in hiding, or more overt change of one's social identity, which may involve a change of one's first name and sex in civil registration. A minority of transgender people also seek sex reassignment therapy, though hormone treatment and surgery (cf. section 1.1). We refer to these people as '*transsexuals*', acknowledging that this name is not generally accepted.

2.1.2 Measurement

Identifying *transsexuals* is easy, since most of these people figure in medical records used in clinical studies among patients who have undergone a medical treatment. Whether or not one has undergone sex-reassignment therapy can also be measured using self-reports in survey studies.

It is more difficult to identify *transgender* people. The wider and shifting connotations of the term pose a problem in survey studies, in particular if the precise questions on that matter are not reported, such as in Stanton et al. 2017). A survey question used by Downing & Przedworski (2018) reads:

Do you consider yourself to be transgender?

Those who responded yes were prompted to indicate *male-to-female, female-to-male, gender-nonconforming, do not know, I'm not sure, or refused to answer*. Responses to such questions are liable for response bias and refusal. Respondents

are often recruited using calls in the transgender community, the members of which will typically experience gender incongruence. Cases of defensive denial will be missed in this way and also in survey studies.

As we have seen in section 1.1, another way to identify transgender people is by asking to which degree they identify with their sex assigned at birth and the opposite sex, as done by Kuyper & Wijsen (2014) and VanCaenegem et al. (2015). Gender incongruent or gender ambivalent people can then be identified by selecting all people who identify as the opposite sex at least as strongly as their assigned sex at birth. In this way, people in defensive denial can more easily be found.

2.1.3 *Types of transgender people*

Transgender people can be characterized using the following dichotomies

Passive – Active

Passive transgenders cope with the experienced gender incongruence by reducing the pain without changing their situation. Pain reduction may involve defensive denial, diversion or seeking compensation in rewarding activities. Active transgenders seek to change their gender-identity, either in social transitions, physical sex reassignment or both (cf. section 2.1.3 below).

Silent – Overt

Awareness of gender incongruence will usually develop in silence. When acknowledged, some transgenders opt to remain 'in the closet', while others 'come out'. This difference is also referred to as 'passive-active'. The term 'stealth' is used for transsexuals who are silent about their former gender.

Binary - non-binary

The gender identity of binary transgender people is either male or female. For example, a person born with female sex characteristics whose gender identity is male is a binary transgender person, specifically a transgender man. Similarly, a person who was assigned male at birth with a female gender identity is a transgender woman.

Non-binary transgender individuals are people with a gender identity other than 'man' or 'woman', i.e. a non-binary gender. This can mean that their gender identity is something in between 'man' and 'woman' or neither. Some non-binary individuals do identify to some extent with a binary gender. Terms used by non-binary people to specify their gender identity include *genderqueer*, *agender* and *bigender*.

2.1.4 *Forms of gender transition*

Above in section 1.2, we distinguished between social and medical gender transition. Below, we expand on these ways to deal with gender-dysphoria.

Social gender transition

Change of one's social gender identity involves first of all 'coming out'. Often, transgender people wish to be addressed in accordance with their experienced

gender. Important parts of this shift can include changing one's name and pronouns. After coming out, transgender men typically use the pronoun 'he' and transgender women the pronoun 'she'. Non-binary individuals often use gender-neutral pronouns such as 'they'.

Social gender transition often involves a change in gender expression, which can include dressing differently, changing one's hairstyle or wearing make-up. Another aspect of social gender transition is role shift, typically in the direction of traditional gender-roles, such as preference for caring tasks and passive sexuality among trans females.

Social gender transition can also involve changing one's official name and/or gender marker in civil registration. Likewise, the gender change is also recorded in some other institutional contexts, such as in sports.

Medical gender transition

Sex-reassignment therapy consists of hormone replacement therapy and surgeries. Transgender people who undergo medical sex-reassignment are referred to as 'transsexuals' (cf. section 2.1.1). This group can be further divided into female-to-male (FtM) and male-to-female (MtF) transsexuals. FtMs are people who were assigned female at birth and transition medically to obtain male bodily characteristics. Likewise, MtFs were assigned male at birth and obtain female bodily characteristics in their medical transition.

The terms MtF and FtM imply a binary transition, but nonbinary transgender people can choose to transition medically as well. Some of them want to obtain an androgynous looking body through sex reassignment therapy, and thus may identify themselves with the terms MtX or FtX ('male to neutral' or 'female to neutral', respectively). Others identify more with the terms MtF or FtM despite having a nonbinary gender. In this paper, we define the terms MtF and FtM to include both binary and nonbinary transgender people who have undergone some form of sex reassignment surgery.

For FtMs, transition often involves testosterone treatment. The main effects of testosterone involve lengthening of the vocal cords resulting in a lower voice, body hair growth, increased muscle mass, body fat redistribution, clitoral growth, increased sex drive, menstruation stop and beard growth. Surgeries for FtMs include breast removal, hysterectomy and penis construction (the most common forms being phalloplasty and metoidioplasty). Relatively few FtMs undergo sex reassignment surgery.

The hormone replacement therapy of male to female (MtF) transgender people consists of estrogen and testosterone blockers. Main effects include muscle mass loss, softening of the skin, fat redistribution, breast growth, reduced hair growth. Laser hair removal and voice training are used by many MtFs to complement the effects of hormone replacement therapy. Common surgeries are breast augmentation and the construction of a neo-vagina.

2.2 Happiness

Over the ages, the term 'happiness' has been used to denote different meanings and reflected opinions on how we should live. Today, the word is mostly used for the

subjective appreciation of life.

2.2.1 *Definition*

In that line, we define happiness as *the degree to which individuals judge the overall quality of their life-as-a-whole favourably*, which definition is spelled out in more detail in (Veenhoven 1984). This concept is central in the World Database of Happiness (Veenhoven 2020a) from which the data reported in this paper were drawn. This definition fits the utilitarian tradition and is closely associated to Bentham's (1789) view of happiness as "the sum of pleasures and pains".

2.2.2 *Components of happiness*

Our overall evaluation of life draws on two sources of information: a) how well we feel most of the time and b) to what extent we perceive that we are getting from life what we want from it. We refer to these sub-assessments as 'components' of happiness, called respectively 'hedonic level of affect' and 'contentment' This distinction is discussed in more detail in Veenhoven (2009), who proposes a theory about difference in the determinants of these components.

Hedonic level of affect. Like other animals, humans can feel good or bad, but unlike other animals, we can reflect on that experience, assess how well we feel most of the time and communicate how we feel to others. Feeling well typically signals that we are doing well, that our innate needs are being gratified (Veenhoven 2009).

Contentment. Unlike other animals, humans can also appraise their life cognitively and compare their life as it is with how they want it to be. This is the thinking-based part of happiness. Our wants are typically guided by common standards of the good life and in this sense, contentment is likely to be more culturally variable than affect level.

Though related, these components do not necessarily concur and in particular not in the case of transgenders. A successful gender transition is likely to reflect in greater contentment, since it involves the realization of a strong *want*, but may go together with a decline in hedonic level if gratification of *needs* is thwarted, such as due to social isolation.

2.2.3 *Difference with wider notions of a good life*

'Happiness' as defined here should not be equated with current notions of 'well-being' and 'quality of life', which typically focus on objective living conditions in the first place, rather than on the subjective evaluation of life. Happiness as defined here should neither be equated with all 'satisfactions', since the concept restricts to satisfaction with one's life as a whole. These conceptual differences are displayed graphically in the figures 1 and 2 and discussed in more detail in Veenhoven (2020c). For a direct link to that text, click [here](#).

Figure 1 help to see flaws in commonly used indexes for 'Quality of life' as mentioned in section 1.3. Items in such indexes cover all quadrants of figure 1. which

means that the sum-scores put chances (upper row) and outcomes (lower row) in one hat (Veenhoven 2000). Likewise, *presumed* conditions for a good life (e.g. employment) are added to indicators of *apparent* quality of life, such as happiness (Veenhoven 2005). In this case of transgenders, this means that meeting objective criteria for a good life, such as having a job and being socially accepted, does not imply that one is satisfied with that life.

Figure 2 helps to see that being satisfied with an aspect of life (right top quadrant), such as one's new gender identity, does not guarantee satisfaction with one's life as a whole (right bottom quadrant).

[Figures 1 and 2 about here](#)

2.2.4 *Measures of happiness*

Since happiness is defined as a phenomenon, we subjectively experience, it can be measured using questioning. Various ways of questioning have been used, direct questions and indirect questions, open questions and closed questions, one-time retrospective questions, and repeated questions on happiness in the moment. A common survey question reads:

*“Taking all together, how happy would you say you are these days?
Are you: very happy, pretty happy or not too happy?”*

Selection of valid measures.

For this research synthesis we draw on the World Database of Happiness, which includes only findings obtained with measures of happiness that have passed a test for fit with the above definition of happiness. This test for face-validity involved close reading of questions. Detail on that selection is available in chapter 4 of Veenhoven (2020c). A direct link to that text is [here](#).

Many commonly used questions and questionnaires fail that test. One such case is the 4-item Subjective Happiness Scale (SHS), proposed by Lyubomirski & Lepper (1999), which contains a question on whether one thinks to be happier than other people. Logically, one can think one might be happier than other people, but still be unhappy, for instance when living in hell. Practically, it is not clear who these 'other' people are, nor how happy they are.

Likewise, one question invalidates the much used 5-item Satisfaction With Life Scale (SWLS) by Diener et al (1985). The last item in that scale asks for endorsement to the statement 'If I could live my life over again, I would change nothing'. Logically, this question does not fit the above concept of happiness: one can enjoy life, but still be open for something else. The item is particularly inapt in this context, since the answer will reflect whether one would go for a transition again, while what we want to know is whether that choice has made one any happier.

3 METHOD

Format of this research synthesis

We applied a new technique of research reviewing, taking advantage of two technical innovations: a) The availability of an on-line findings-archive, the [World Database of Happiness](#), which holds descriptions of research findings presented in a standard format and terminology on separate on-line ‘finding-pages’ with unique internet addresses. b) The change in academic publishing from print on paper to electronic text read on screen, in which links to online information can easily be inserted to facilitate synthetic presentation. We call that ‘online supported research synthesis’.

3.1 World Database of Happiness

Since the 1970’s, happiness has become a topic in empirical research, initially in the field of ‘Social Indicators Research (Veenhoven 2017) and since 2000 also in the fields of ‘Positive psychology’ (Lyubomirsky et al 2005) and ‘Happiness Economics’ (Bruni & Porta 2005). This has resulted in a spectacular rise in the number of scholarly publications on happiness. To date (March 2020) the [Bibliography of Happiness](#) lists 14420 publications of which 7476 report an empirical study that has used a valid measures of happiness. (Veenhoven 2020b).

Findings archive

This flow of research findings on happiness has grown so large that even specialists have trouble keeping an overview. For this reason, a ‘findings-archive has been established, in which quantitative outcomes are presented in a uniform format and are sorted by subject. This ‘World Database of Happiness’ is freely available on the internet at <https://worlddatabaseofhappiness.eur.nl>.

The World Database of Happiness is an ongoing university project of [Erasmus University Rotterdam](#) in the Netherlands, based in the Erasmus Happiness Economics Research Organization [EHERO](#). Its structure is shown on Figure 3, in which we present the current contents of its constituting collections. A recent description of this novel technique for the accumulation of research findings can be found with Veenhoven (2020a). Details on the notation of findings is given [here](#).

[Figure 3](#) about here

Finding pages

The World Database of Happiness is a collection of ‘finding pages’ on which results of empirical research on happiness are reported in a standard language and format. An example of a findings page is given in Figure 4. In this research synthesis we use links to such online finding pages.

[Figure 4](#) about here

Inclusion criterion

The World Database of Happiness restricts to research findings on happiness as

defined in section 2.1.1. Studies on related matters, such as on mental health or wider notions of 'flourishing' are excluded. Selection is not based on how authors name concepts, but on close reading of the measures used. No further inclusion criteria are used, but full details about the design of the included studies allow users to select further on methodological grounds if they wish. Numbers on included findings are given at the start-page of the World Database of Happiness (cf. Figure 3)

3.2 Use for this review of findings on happiness of transgenders

Studies found

To date (March 2020) the database includes ?? studies in which the happiness of transgender people had been assessed. These reports were published between 19?? and 2019. Together, these studies give ?? 'findings', since several studies report more than one result. A list of these studies is presented in [Table 1](#).

[Table 1](#) about here

People investigated

The trans-people investigated in these studies were recruited from two sources 1) medical follow ups 2) calls in LGBT-communities. In both cases, the samples are self-selected and are likely to involve an overrepresentation of overt transgender people.

Organization of the findings

We sort the findings in two ways: 1) by aspects of transgenderism and 2) by the research methods used.

[Table 2](#) about here

Presentation of the findings

In [Table 3](#) we summarize the observed effects of treatment for gender-transition on happiness using 3 possible signs: + for a positive relationship, – for a negative relationship and 0 for a non- relationship. Statistical significance is indicated by printing the sign in **bold** ($p < 0.05$). Some of the findings are presented in a string of signs, e.g. **+/+** for studies that used more than one measure of happiness, or for studies that used more than one control group. We do the same in [Table 4](#) for observed effect sizes, which is a variant of Table 3 where the + and – signs are substituted for the assessed change in happiness as a percentage of the possible scale range.

Links to online detail

All the signs in tables 3 and 4 link to finding pages in the World Database of Happiness, which serves as an online appendix in this article. If you click on a sign, the corresponding finding page will open, to allow you to see full details of the observed relationship; of the people investigated, sampling methodology, the

measurement of both variables and the statistical analysis. An example of such an electronic finding page is presented in [Figure 3](#). This technique allows us to present the main trends in the findings, while keeping this paper to a controllable size and at the same time allowing the readers to check in depth any detail they wish.

3.3 Advantages and disadvantages of this review technique

There are pros and cons to the use of a findings-archive such as the World Database of Happiness and plusses and minuses to the use of links to an on-line source in a text like this one.

Advantages

1) The technique is useful for ongoing harvesting of research findings on a particular subject because of: a) Efficient gathering of research on a particular topic; happiness in this case. b) Uniform description of research findings on electronic finding pages, using a standard format and a technical terminology. c) Storage of these finding pages in a well searchable database. 2) Sharp conceptual focus and selection of studies on that basis, so that it is clear what is being synthesized. 3) The technique allows new ways of presenting the data in e) condensed tabular overviews f) in which main trends in the data can be visualized g) access to detail is provided using links to online finding pages, and h) the effect of moderators can be visualized using colours. i) Such overviews can easily be updated

Disadvantages

1) Considerable investment is required to establish a findings archive, which involves a) development of explicit criteria for inclusion, b) definition of technical terms c) software and d) which pays only when a lot of research is processed on a continuous basis. 2) The sharp conceptual focus cannot easily be changed. 3) much of the detailed information is not directly visible in the + and – signs. 4) The links work only for electronic texts. 5) This new way of gathering and presenting research findings will strike some readers as uncommon.

3.4 Differences with traditional reviewing

Traditional review articles cannot report much detail about the studies considered and rely heavily on references to the research reports read by the reviewer, which typically figure in a long list at the end of the review paper that the reader can check in theory, but seldom does. As a result, traditional reviews are vulnerable to interpretations made by the reviewer and methodological variation can escape the eye.

Another difference is that the conceptual focus of many traditional reviews in this field is often loose, covering fuzzy notions of ‘well-being’ rather than a well-defined concept of ‘happiness’ as described in section 2.1.1. This blurs the readers perspective of what the data describe and involves a risk of ‘cherry picking’ by

reviewers. A related difference is that traditional reviews of happiness research often assume that the title of a questionnaire corresponds to its conceptual contents. Yet, several 'happiness scales' measure different things than happiness as defined in section 2.1, e.g. the much-used Life Satisfaction Scale (Neugarten et al 1961), which measures social functioning.

Still another difference is that traditional narrative reviews typically focus on interpretations advanced by the authors of the research reports, while in this quantitative research synthesis we focus only on the data presented.

Though 'typical', the above weaknesses will not apply to all narrative reviews.

3.5 Difference with quantitative meta-analysis

Though this research synthesis is a kind of meta-analysis (Borenstein et al 2009), it differs from common meta-analytic studies in several ways.

One difference is the above-mentioned conceptual rigor; like narrative reviews many meta-analyses take the names given to variables for their content, thus adding apples and oranges and comparing chocolate with cheese.

Another difference is the direct online access to full detail about the research findings considered, presented in a standard format and terminology, while traditional meta-analytic studies just provide a reference to research reports from which the data were taken.

In this case of a research synthesis of findings on happiness in transgenders a further difference is that the available data do not allow application of advanced methods of statistical meta-analysis.

4 RESULTS

Below we will now answer our research questions one by one, using tables which give an overview of the available research findings and provide links to detail about these findings in the World Database of Happiness.

4.1 How happy are transgender people?

We present distributional findings on happiness in transgender people of all kinds in table 2. The *absolute* level of happiness observed among transgenders is presented in the mean in column 2, while dispersion around the means is presented in column 3. To get a view on the *relative* happiness of transgender people, we first compared with findings on happiness in general population at the same time and yielded with a comparable question. For that purpose, we used the collection of distributional findings on happiness in nations of the World Database of Happiness. Next, we also listed the results of some studies that had assessed happiness in a control group, typically matched for age. These comparison data are presented in the columns 4 and 5, with the difference with transgender people presented in the columns 6 and 7. All findings on happiness are transformed to a common 0-10 range.

Absolute happiness

The *level* of happiness among trans people is presented at the bottom of column 3 of table 2. The mean of the means observed in these 10 studies is 5,69 on scale 0-10, which is close to the neutral level of 5. On this basis, we can say that transgender people are on average not too happy, at least in the contemporary western countries where these studies took place.

At the bottom of column 4 we see that the *dispersion* of happiness among transgender people is quite high with an average standard-deviation of 2,66. So, not all transgender people are 'neither happy nor unhappy, but a considerable part of them are either 'happy' or unhappy'.

Relative happiness

In column 4 of table 2 we see that the *level* of happiness tends to be higher among compatriots and is also higher among controls. The average difference is 1,78 point on scale 0-10, in other words about 20%.

In column 6 we see that the dispersion of happiness tends to be lower among compatriots and controls. The difference is +0.43, which is small at first sight but denotes 22% of the possible range of the standard deviation on scale 0-10.

Below in the section 4.4 we will see similar patterns among specific kinds of trans genders. In section 5.2 We will discuss whether these differences should be regarded big or small.

[Table 2 about here](#)

4.2 How happy are transgender people who made a change or not?

As yet, only one study has compared the happiness of passive and active transgenders (McNeil et al. 2012). The results are presented on table 3. Passive (no

want) and the most active (completed) stand out as the happiest, while doubters (considers, unsure) are the least happy.

[Table 3 about here](#)

4.3 **How happy are transgender people who opted for social transition?**

As we have seen in section 1, about 1% of the general population experiences gender-incongruence, 0,4% is gender-dysphoric and only 0,005% passes a medical sex-reassignment. This means that the vast majority of transgender people use other ways to bring their life more in accordance with their experienced gender identity, which we denoted as 'social transitions' (cf. section 1.2). This raises the question of what these social ways are and how they have worked out on the happiness of transgender people.

Following the structure of table 2, we devised table 4, on which we listed various social gender transitions in the left column 1. For only one of these did we find data on happiness, that is, legal gender transition. Swedish transgender people who have changed their sex in civil registration are fairly happy on average, but less happy than their compatriots. Comparison with other social gender transitions is not possible for the time being. Another problem is that the report (Zeluf et al. 2016) does not distinguish between transgender people who have passed a medical sex-reassignment and who have not.

All other rows in table 4 remain blank. Given our sketch of earlier research in section 1.4, this will be no surprise. Still, it marks a serious gap in our knowledge, we know *least* about the effects of happiness of *most* used ways to deal with gender-dysphoria.

Why present an almost empty table? We do this to visualize the knowledge deficit, since pictures tell more than words. At the same time, it provides us with a format on which future findings can be entered.

[Table 4 about here](#)

4.4 **How happy are transgender people who opted for medical sex-reassignment?**

In answer to this question we will first consider the available findings on happiness of transgender people during the sex-reassignment process, that is, patients of a gender clinic, and next the happiness of transgender people after the process.

Patients of a gender clinic

Table 5a is a variant of table 2, now restricted to research findings obtained among patients of a gender clinic, that is, gender dysphoric people who seek treatment for bringing their body in accordance with their experienced gender identity.

The *absolute* level of happiness in this population is 5,95 as one can see at the bottom column 2. This is well above the neutral point of 5, but still not great. The average dispersion around the observed means, as measured with the standard-deviation is 2.01, as we can see at the bottom of column 3. This high standard-deviation implies again that there are happy and very unhappy people in this population

These numbers are relatively low, when compared to happiness among compatriots and matched controls, as we can see at the bottom of columns 6. The dispersion is relatively high, as we can see at the bottom of column 7.

[Table 5a about here](#)

Completed transsexuals

On table 5b we report a similar analysis, now limited to patients who have undergone treatment for physical sex-reassignment. These data include comparisons between people in treatment and after treatment.

The *absolute level* of happiness in this population is 5,60, as one can see at the bottom of column 2. This level is again marginally above neutral. The average *dispersion* around the mean is again high, with a standard deviation of 2.36.

Relative to compatriots and controls, transsexuals are again less happy, as appears in an average difference of -0,74 at the bottom of column 6. The dispersion around the means is again higher, now with an average difference in standard-deviations of +0,73.

[Table 5b about here](#)

In the tables 5a and 5b we see the same pattern as observed in table 2. The *absolute level* of happiness in both these transgender groups is barely above neutral, and *relatively* low when compared to cisgenders, while the **dispersion** of happiness in both transgender groups is high both *absolutely* and *relative* to otherwise comparable cisgenders. The data suggest that completed transsexuals are best off happiness wise, as appears in a smaller difference with cis-genders.

However, the differences are small and comparability limited due to variation in selectivity of the samples and social conditions in nations and times. We can learn more about the effect of sex-reassignment in happiness from the follow-up studies to be presented in the next section 4.5

4.5 Did the physical sex-reassignment make trans-people happier?

A tentative answer to this question was given in table 4 in which the results of a study are summarized in which average happiness at different stages on the way to sex-reassignment is compared (MacNeil et al 2012). Average happiness appeared to be higher, the further on that path, with transsexuals being the happiest. This suggest that adjustment of the body to their mind has made these people happier, but these cross-sectional data cannot provide proof, since the observed differences can be due to other causes, among which selection for psychological health. Note that transgender people who did not want sex-reassignment were found to be equally happy as completed transsexuals (cf. section 4.2).

Demonstration of causality requires follow-up of the same persons over time, before and after treatment. Such data are presented in 5a and preferably with comparison to a control group. In column 3 we see the result of a cross-sectional comparison, between transgender people who had surgery with transgenders who had not. The ones who had passed surgical treatment, the transsexuals, were

happier, which again suggests, but cannot prove a causal effect of sex-reassignment.

Better indications for causality are presented in the columns 3 and 4 of table 5c, which report changes in happiness right after treatment and later follow-up. Hormone treatment by itself did not affect happiness after one year, but combined with later surgery it tends to be followed by a gain in happiness, as the + signs in column 3 and 4 show.

A closer look at the finding pages behind these signs reveals considerable variations. The follow-up study by Lindquist et al. (2017), shows a rise in happiness at one year follow-up but a gradual loss of that gain in the next five years, bringing these transsexuals back to their base-line level of happiness.

Comparisons with a control group is still missing as visualized in the empty columns 5 and 6.

[Table 5c about here](#)

4.5.1 *What is the size of the effect on happiness of surgical sex-reassignment?*

We expressed the observed changes in happiness in the percentage of the 0-10 scale range, indicated as 'D%sr' on the finding pages of the World Database of Happiness. This is a well interpretable statistic, which we computed from reported differences in mean happiness. The observed effect sizes are presented in table 5d, which is a variant of table 5c, now restricted to findings for which change on the scale range could be computed, which was not possible in 2 cases.

Several of the effect sizes in table 5b are quite substantial, such as the 24% gain in happiness following female to male transition at the bottom of row 3 in table 3b. However, in that same row we see the much lower gain of 5% observed by Lindquist et al. (2017) at 3 year follow up, which turns in a 1% loss at 5-year follow-up.

[Table 5d about here](#)

4.5.2 *What kinds of people profited most/least from physical sex-reassignment?*

The effects of sex-reassignment are likely to differ across persons and situations, such as between young and old people, married or single and living in a modern society or not. Data on such moderators are lacking as yet, but there are three studies that compared the happiness of male-to-female (MF) transsexuals with the happiness of female-to-male transsexuals (FM). The results of these studies are presented on table 5e, which follows the format of the table 2.

All three these studies observed greater *absolute* happiness after female to male transition than after male to female transition. *Relative* to compatriots of the same sex, transsexuals are again less happy, but the difference is smaller among transsexuals who changed from female to male than among transsexuals who changed from male to female.

[Table 5e about here](#)

4.5.3 *What specific surgical treatments affected the happiness of transsexuals most/least?*

Surgical sex-reassignment differs for initially males and females and can be more or

less radical. On table 5f we list the most common surgical treatments in column 1.

For only one of these surgical treatments has the effect on happiness been assessed, that is, construction of a neo-vagina as part of a male to female sex-reassignment, which was considered in three studies. The empty cells in the table demonstrate that there is no research on happiness after other kinds of sex-reassignment surgery.

All three studies on happiness after surgical construction of a neo-vagina observed fairly high *absolute* levels. The *relative* happiness level was also fairly high and approached average happiness among compatriots of the same sex.

However, the spread around the high averages was high in an *absolute* sense, with standard deviations above 2 points. Comparison with spread of happiness among compatriots was not possible in this case due to lack of data.

[Table 5f about here](#)

4.5 In what conditions are transsexuals the most/least happy?

How happy people are depends on their living conditions and on how they cope with these (cf. Figure 1). Below we present the few of these factors that have been considered in empirical studies among trans people. As yet, such moderators have hardly been considered in combination

4.5.1 *Situational factors*

Living environment

Trans people living in highly populated areas are happier than those living areas with a low population density, but this effect is not significant.

Social position

In the work-related area, a significant positive correlation with happiness exists for employment and high income. A higher education level also correlates positively with happiness, and this correlation is significant when upper-secondary and university level are compared.

Social acceptance

Transgender people who have comfort with public perception, are accepted by society and have confidence in their gender expression are happier (but not significantly) than those who have not. Additionally, having amnesties in the vicinity correlates with higher happiness.

Social support

Transgender people who report having social support, both in the emotional and practical sense, are significantly happier than those who don't.

4.5.2 Personal characteristics

Age

Transgender people in their twenties are happier than those in their teens. Surprisingly, happiness increases with age for all age groups, although not significantly.

Health

Multiple studies indicate that physical health correlates positively but not significantly with happiness among trans people. A similar pattern was found for mental health. Only in the case of female to male transsexuals adverse mental health symptoms had a significant negative correlation with happiness. This is surprising, since studies in the general population show typically strong and significant correlations with happiness. physical and mental health

Transgender people who have had negative health care experiences are significantly less happy than those who have not.

Religion

Religious transgender people are somewhat happier than nonreligious ones, although not significantly.

Satisfaction with work

Employed transgender people who report satisfaction with their work are happier than working transgenders who report low job-satisfaction.

Stimulant use

Tobacco, alcohol and illicit drug use all correlate negatively with transgender happiness.

4.5.3 Transition related factors

Kind of gender transition

There is almost no difference in happiness between trans-men, trans-women and non-binary transgender people.

Openness about transition

Transgender people who are open about their transgender identity are significantly happier than those who are sometimes or rarely. Interestingly, trans-people who are never open are almost as happy as those who are always open.

Identity after transition

Male to female transgenders who have undergone sex reassignment surgery are significantly happier when they see themselves fully as a woman. Transgender men who have more masculine traits are significantly happier, as are transgender women who have more feminine traits. Perhaps surprisingly, having more feminine traits also correlates with higher happiness in transgender men, although not significantly.

Phase in transition

People who have their legal gender changed or do not want a legal gender change are significantly happier than people who have not yet changed their legal gender. This includes people who want to change their legal gender to something other than male or female (for instance X), which was not possible at the time of the study.

Satisfaction with body

Transgender people who report satisfaction with their primary and secondary sex characteristics tend to be happier, although not significantly.

Sexual function

For post-op transgender women, it is found that sexual function, a positive attitude towards genitals, and a good (functional and aesthetic) result of sex reassignment surgery all correlate significantly with happiness.

[Table 6 about here](#)

5 DISCUSSION

5.1 Main findings

The available research findings show that average happiness among transgender people is around the neutral point of 5 on scale 0-10 and that they are less happy than cisgender, the difference being about 2 point on scale 0-10 (cf. section 4.1). This means that gender-incongruence is a burdening condition.

The spread around the mean is high, both absolutely and relatively to cisgender. This means that a substantial portion of transgender people is either unhappy or quite happy and the existence of a share of happy transgenders means that a satisfying life is well possible in this condition.

Follow-up studies among the minority of transgender people who opt for medical sex-reassignment shows that this treatment adds to their happiness, both absolutely and relative to cisgender. However, the dispersion of happiness is still high among these 'transsexuals', which means that some of them end up less happy. The longest follow-up suggests that the initial gain in happiness dissipates over the years.

5.2 Bearing of the happiness deficit and treatment

Transgenders tend to be less happy than otherwise comparable cisgender; the 2-point difference marking 20% of the 0-10 scale range. How bad is that?

One answer to that question is how these percentages compare to changes in happiness following other major life-events as observed in longitudinal studies. Getting married appears to raise happiness by some 5% and a gain of only 0.5% in happiness was found for winning a lottery. Becoming unemployed reduces happiness by 8% and the loss of one's spouse by 12%. (Bakker et al 2020 Figure 8). From this perspective, the observed happiness deficit of transgender people is alarming and are the observed gains in happiness following sex-reassignment comforting.

Another answer is found in the estimation of how much additional income would be required to bring about similar rises in happiness. Analyses on the German Socio-Economic Panel Study (GSOEP) have yielded estimates of the effect of change in household income on happiness. Using this dataset over the years 2003-2008, Pfeifer (2013) reports that "Household income significantly increases life satisfaction on average by about 0.085 points per 1,000 Euros additional monthly net income in the pooled regressions and by about 0.039 points in the fixed effects regressions". Departing from the latter most conservative estimate of a 0.04-point rise on the 0-10 happiness scale per 1000 Euro additional monthly income, the 20% happiness deficit among transgender people would require a compensation of about € 5000 extra income per month. Likewise, the 5% (lowest) observed gain in happiness following sex-reassignment equals an increase in monthly income of about € 1.250, while the highest observed gain in happiness after sex-reassignment of 24% would equal some € 6000 additional monthly income.

5.3 Usefulness for informed choice

The aim of this research synthesis was to provide an overview of scientific findings on the basis of which gender-dysphoric people can make an educated guess of how different options for dealing with their gender incongruence will work out on their happiness. How useful is the information provided in this paper for that purpose?

Choice for social gender transition

As yet (2020), research on the effect of gender transition on happiness has limited to effects of medical sex-reassignment, which option is used by some 5% of all transgender people (cf. section 1,2). There is hardly any research on the effects on happiness of social transitions as was visualized in the empty cells in table 4. Hence, the available data inform us only about one option.

Still, the combination of three findings allows a rough estimate of the average effect of social gender transitions on happiness: 1) all transgender people are considerably less happy than otherwise comparable cisgender people (cf. section 4.1), 2) transgender people who do not want to change are happier than transgenders who consider a change (cf. section 4.2) and 3) transgender people who have passed a medical sex-reassignment have become happier (cf. section 4.3). In combination, this implies that mere social gender transition does not promise much happiness.

This is not to say that all social gender transitions result in a not too satisfying life. It is well possible that particular social transitions work out well for particular kinds of transgender people and it a task for future research to map these contingencies (cf. section 5.5). Yet for the time being, we are empty handed.

Choice for medical sex-reassignment

The available findings suggest that medical sex-reassignment tends to be followed by a raise in happiness, both absolutely and relatively to otherwise comparable cisgenders. However, the spread around the average change is high, which means that some get less happy (cf. section 4.4).

As yet, the data provide little view on predictors of gain or loss in happiness following surgical sex-reassignment. All we can say at the moment is that female-to-male transition promises a greater gain in happiness than male-to-female-transition and that among male-to-female transsexuals, surgical construction of a neo-vagina seems to add to their happiness (cf. section 4.5.3).

For the time being we are largely in the dark about the further factors that may moderate the effects of sex-reassignment on happiness, such as personal characteristics like one's body shape and personality and environmental conditions such as marriage chances (cf. section 4.5.2).

5.4 How dependable are the observed gains in happiness among transsexuals?

The results of the effect studies reviewed here can be biased in several ways and in particular by response bias. Non-response rates are quite high, with percentages over 50%, as we can see in column 3 of table 1. This non-response can be due to unwillingness to acknowledge that the sex-reassignment has not made one any happier. If so, there was less gain in happiness than the percentages in table 5d

suggest. However, it is also possible that successful transsexual people are more inclined to forget about their past treatment and it is also possible that unhappy transsexuals are more inclined to give voice to that situation by participating in a follow-up study. If so, that could be one of the reasons for the high standard-deviations we have seen. As long as we have no clear indications that such biases exist, we better take the data as they are.

5.5 Agenda for further research

The 19 studies considered in this research synthesis (cf. table 1) provide a small evidence base for a big issue. Though rates of gender-dysphoria may be small percent wise, 0,6% and 0,2% (cf. section 1.2), the number of afflicted people amounts to millions. As argued in section 5.2, the burden is high. So, what we need in the first place is more research. The following issues should be addressed in that context.

Measures of wellbeing

Future research on the effects of sex-reassignment should better not use mixed measures of wellbeing, such as the WHOQOL, but consider the various kinds of wellbeing separately, happiness in particular. A re-analysis of existing data-sets is a first step on that path.

Social gender transitions

We are in the dark about the effect on happiness of non-physical gender transformations as illustrated by the empty cells in table 4. How happy are the hidden transgenders in their closet and how happy are overt transvestites? Answering such questions deserves priority, since they concern the vast majority of transgender people (cf. section 1.2) and because there is reason to expect that not all social gender transitions work out well happiness wise (cf. section 5.3)

Research design

The empty cells in the right side of tables 5 illustrate that we need more follow-up studies, preferably with comparison with a control group. Though randomization will not be possible in the case of sex-reassignment, we can compare with gender-incongruent people who have chosen not to have surgical treatment. Did these people fare less well happiness wise?

Aspects of sex-reassignment

The many blanks in table 5f show that we are only at the beginning of charting the effects on happiness of all possible medical treatment modalities. Is complete sex-reassignment preferable, or do transgender people live equally well with only partial re-assignment, such as only mastectomy for female-to-male transsexuals? How did a change to non-gender work out on happiness?

Moderators

In section 4.5.2 we could only report on the difference in change of happiness following sex-reassignment for female-to-male and male-to-female transitions.

Evidently, informed choice requires more information about what kinds of people have become more or less happy after sex-reassignment. The answering of this question requires not only additional research, but also bigger samples. A particular burning question is what kinds of people have become less happy after surgical sex-reassignment.

5.6 Policy implications

The share of transgender people in the population is substantial (cf. section 1.2) and the burden of suffering is high (cf. section 5.2). Awareness of that situation is rising. This all makes that policy makers cannot ignore the issue anymore. What should they do?

Provide care

Treatment for gender dysphoria should be part of the regular health-care, surgical sex-reassignment included. This is the case in several developed nations, where the care system also generated the knowledge reviewed in this paper, but there are more countries where adequate care is as yet unavailable.

Combat discrimination

The happiness of transgender people depends to a large extent on social acceptance of trans people, as we have seen in section 4.5. So, another way to create greater happiness is to combat discrimination, both formal and informal.

Develop knowledge

We know almost nothing about the effects on happiness of non-physical gender transitions practiced by the great majority of transgender people (cf. section 5.3). Our knowledge about effects on happiness of physical sex-reassignment is incomplete. Though the effect tends to be positive on average, we do not yet know what kinds of trans people become more or less happy after surgical sex-reassignment and what specific treatment work best for whom. We are also largely in the blind about the long-term effects of sex-reassignment on happiness.

By lack of all this scientific information, transgender people cannot make well-informed choices and neither can their advisors. So, investment in research is required. We are ready to gather the results in the coming updates of this paper.

6 CONCLUSIONS

On average, transgender people are not too happy, the average being barely above the neutral point 5 on the 0-10 happiness scale, which is about 20% lower than among otherwise comparable cisgenderers are in contemporary western nations. The dispersion of happiness is higher among transgenders than among cisgenderers, which means that quite some transgenders are either very unhappy or happy. This implies that a satisfying life is possible for transgender people.

The available research findings suggest that surgical sex-reassignment tends to be followed by a rise in happiness, but does not inform us about the effects on happiness of non-physical social gender transitions. As such, there is as yet no evidence basis on which transgender people can orient when seeking ways to a more satisfying life.

REFERENCES

*Studies included in this research synthesis are marked with **

Arcelus, J., Bouman, W.P., VandenNoortgate, W., Claes, L., Witcomb, G., & Fernandez-Ara, F. (2015). Systematic review and meta-analysis of prevalence studies in transsexualism. *European Psychiatry*, 30 (6) 807-815

Bakker, A, Burger, M., Oerlemans, W., VanHaren, P. & Veenhoven, R. (2020) Raise of Happiness Following Raised Awareness of How Happy One Feels: A Follow-Up of Repeated Users of the Happiness Indicator Website. *International Journal of Applied Positive Psychology*, online since 19/05/2020

F. Beek, T., Cohen-Kettenis, P. T., & Kreukels, B. P. (2016). Gender incongruence/gender dysphoria and its classification history. *International Review of Psychiatry*, 28(1), 5-12.

Berg, J. E. A., & Gustafsson, M. (1997). Long term follow-up after sex reassignment surgery. *Scandinavian Journal of Plastic and Reconstructive Surgery and Hand Surgery*, 31(1), 39-45.

* Buncamper, M. (2016). The Penile Inversion Vaginoplasty. PhD Dissertation, Vrije Universiteit Amsterdam, Netherlands.

* Cadenas Blanco, M., Fernandez Rodriguez, M., Garcia Vega, E. & Guerra Mora, P. (2019). Life satisfaction in people with gender dysphoria: control case study (Satisfaccion con la vida en personas con disforia de genero: Estudio caso-control). *Revista desexologia*, 8 (1): 5-12.

* Costantino, A., Cerpolini, S., Alvisi, S., Morselli, P. G., Venturoli, S. & Meriggiola, M. C. (2013). A prospective study on sexual function and mood in female-to-male transsexuals during testosterone administration and after sex reassignment surgery. *Journal of sex & marital therapy*, 39(4), 321-335.

* Couch, M. A., Pitts, M. K., Patel, S., Mitchell, A. E., Mulcare, H. & Croy, S. L. (2007). *Tranznation: A report on the health and wellbeing of transgender people in Australia and New Zealand*. Working Paper, Australian Research Centre in Sex, Health and Society (ARCHSHS), La Trobe University, Melbourne, Australia.

Downing, J.M. & Przedworski, J.M. (2018) Health of Transgender Adults in the U.S., 2014–2016, *American Journal of Preventive Medicine*, 55 (3) 336-344

* Drydakis N. (2016) Transgenderism, Sex Reassignment Surgery and Employees' Job-Satisfaction. *Köllen T. (eds) Sexual Orientation and Transgender Issues in Organizations*, 83-99. Springer, Cham.

* Gerymski, R. (2017). Influence of the sex reassignment on the subjective well-being of transgender men—results of the pilot study and discussion about future research. *Przegląd Seksuologiczny*, 16 (4), 9-14.

* Gerymski, R. (2018). Support and coping as moderators of the relationship between perceived stress and the quality of life of transgender people (Wsparcie i radzenie sobie ze stresem jako moderatory związku stresu i jakości życia osób transpłciowych). *Czasopismo Psychologiczne*, 24(3), 607-616.

* Holt, N.R., Huit, T.Z., Shulman, G.P., Meza, J.L., Smyth, J.D., Woodruff, N., Mocarski, R., Puckett, J.A. & Hope, D.A. (2019). Trans Collaborations Clinical Check-In (TC3): Initial Validation of a Clinical Measure for Transgender and Gender Diverse Adults Receiving Psychological Services. *Behavior therapy*, online, 1-14.

Jones, T., De Bolger, A. D. P., Dune, T., Lykins, A., & Hawkes, G. (2015). *Female-to-male (ftm) transgender people's experiences in Australia: A national study*. (Springer Briefs in sociology). Cham, Switzerland: Springer, Springer Nature.

* Kuiper, B., & Cohen-Kettenis, P. (1988). Sex reassignment surgery: a study of 141 Dutch transsexuals. *Archives of sexual behavior*, 17(5), 439-457.

Kuyper, L. & Wijsen, G. (2014) Gender Identities and Gender Dysphoria in the Netherlands, *Archives of Sexual Behavior*, 43, 377–385

Layard, R. (2010) The Greatest Happiness Principle; Its Time Has Come. *Journal for Institutional Comparisons*, 8, 26-32

* Lindqvist, E. K., Sigurjonsson, H., Möllermark, C., Rinder, J., Farnebo, F., & Lundgren, T. K. (2017). Quality of life improves early after gender reassignment surgery in transgender women. *European journal of plastic surgery*, 40(3), 223-226.

* Löwenberg, H., Lax, H., Neto, R. R., & Krege, S. (2010). Complications, subjective Satisfaction and sexual Perception after Man-to-Woman-Gender Operation (Komplikationen, subjektive Zufriedenheit und sexuelles Erleben nach geschlechtsangleichender Operation bei Mann-zu-Frau-Transsexualität). *Zeitschrift für Sexualforschung*, 23(4), 328-347.

Lyubomirski, S. & Lepper, H. S. (1999) A Measure of Subjective Happiness: Preliminary Reliability and Construct Validation. *Social Indicators Research*, 46, 137 – 155

Mandal, J., Ponnambath, D.P. & S.C. (2016), Utilitarian and deontological ethics in medicine, *Tropical Parasitology* 6 (1): 5–7.

* McNeil, J., Bailey, L., Ellis, S., Morton, J., & Regan, M. (2012). Trans mental health study 2012. Scottish Transgender Alliance.

* Rabito-Alcón, M., & Rodríguez-Molina, J. (2016). Satisfaction with life and psychological well-being in people with gender dysphoria. *Actas Españolas de Psiquiatría*, 44(2), 47-54.

* Revol, M., Servant, J. M., & Banzet, P. (2006). Surgical Treatment of Male-to-Female Transsexuals: a Ten-year Experience Assessment (Prise en charge chirurgicale des transsexuels masculins: évaluation rétrospective d'une expérience de dix ans). *Annales de chirurgie plastique esthétique*, 51(6), 499-511.

Riggle, E.D.B., Rotosky, S.S., McCants, Lw. E. & Pascal-Hague, D. (2011) The positive aspects of a transgender self-identification. *Psychology and Sexuality*, 2 (2) 147-158

Sausa, L.A., Keatley, JA & Operario, D. (2007) Perceived Risks and Benefits of Sex Work Among Transgender Women of Color in San Francisco, *Archives of Sexual Behavior*, 36(6):768-7

Schulman, G.P., Holt, N.R., Hope, D.A., Mockarski, R., Eyer, J. & Woodruff, R (2017). A review of Contemporary assessment tools for use with transgender and gender non-conforming adults, *Psychology of Sexual Orientation and Gender Diversity*, 4 (3) 304-313

Stanton, M.C., Ali, D. & Chaudhuri, S. (2017) Individual, social and community-level predictors of wellbeing in a US sample of transgender and gender non-conforming individuals. *Culture, Health and Sexuality*, 19 (1) 32-49

* Thompson, H. M., Reisner, S. L., VanKim, N., & Raymond, H. F. (2015). Quality-of-life measurement: assessing the WHOQOL-BREF scale in a sample of high-HIV-risk transgender women in San Francisco, California. *International Journal of Transgenderism*, 16(1), 36-48.

VanCaenegem, E., Wierckx, K., Elaut, E., Buysse, A., DeWaele, A., VanNieuwenburgh, F., DeCuperere, G. & T'Sjoen, G. (2015) Prevalence of Gender Nonconformity in Flanders, Belgium. *Archives of Sexual Behavior* 44, 1281–1287

Veenhoven, R. (1984) *Conditions of Happiness*, Reidel (Now Springer/Nature) Dordrecht, Netherlands

Veenhoven, R. (2017) Co-development of Happiness Research: Addition to "Fifty Years After the Social Indicator Movement. *Social Indicators Research*, 135 (3), 1001-1007

Veenhoven, R. (2000) The four qualities of life. Ordering concepts and measures of the good life. *Journal of Happiness Studies*, 1, 1-39

Veenhoven, R. (2005) Apparent quality of life in nations. How long and happy people live. *Social Indicators Research*, 71, 61-86

Veenhoven, R. (2020 a) *World Database of Happiness: Archive of research findings on subjective enjoyment of life*. Erasmus University Rotterdam. Available at: <http://worlddatabaseofhappiness.eur.nl>

Veenhoven, R. (2020b) *Bibliography of happiness*. World Database of Happiness,

Erasmus University Rotterdam. Available at:
http://worlddatabaseofhappiness.eur.nl/hap_bib/bib_fp.php

Veenhoven, R. (2020c) *Measures of happiness*. World Database of Happiness, Erasmus University Rotterdam. Available at:
http://worlddatabaseofhappiness.eur.nl/hap_quer/hqi_fp.htm

Veenhoven, R. (2020d) *Correlates of Happiness*. World Database of Happiness, Erasmus University Rotterdam. Available at:
http://worlddatabaseofhappiness.eur.nl/hap_cor/cor_fp.htm

Veenhoven, R. (2020a) *World Database of Happiness: A findings archive*. Chapter 2 in: Welsch, H., Maddison, D. & Rehdanz, K. (Eds) "Handbook of Wellbeing, Happiness and the Environment". Edward Elger Publishing, Cheltenham, UK

Veenhoven, R. (2020b) Will healthy eating make you happier? Accepted for publication in Applied Research in Quality of Life

Veenhoven, R. Chiperi, F., Kang, X. & Burger, M. (2018) *Happiness and Consumption: A research synthesis using an online finding archive*, EHERO working paper 2018/2 Erasmus Happiness Economics Research Organization, EHERO Erasmus University Rotterdam, POB 1738, 3000DR Rotterdam Netherlands

Ware, J.E., Snow, K.K, Kosinski, M.A. & Gandek, B.G. (1993) *SF36 Health Survey: Manual and Interpretation Guide*, The health Institute, New England Medical Center, Boston, USA. Available at:
https://www.researchgate.net/publication/247503121_SF36_Health_Survey_Manual_and_Interpretation_Guide

Weinforth, G., Fakin, R., Giovanoli, P. & Garcia-Nunez, D. (2019) Quality of Life Following Male-To-Female Sex Reassignment Surgery. *Deutsches Ärzteblatt International*, 116, 253 - 260

WHO (2020) *WHOQOL: Measuring Quality of Life*: Available at
<https://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/index1.html>

Wiepjes, C.M., Nota, N. M., DeBlok, C./J.M., Klaver, M., Annelou L. C. DeVries. A.L.C. Wensing-Kruger, S.A., Renate T. DeJongh, R.T. Mark-Bram Bouman, M-B. Steensma, T.D., Cohen-Kettenis, P., Gooren, L.J.G., Kreukels, B.P.C. and Martin DenHeijer, M. (2018) The Amsterdam Cohort of Gender Dysphoria Study (1970-2015): Trends in Prevalence, Treatment, and Regrets. *Journal of Sexual Medicine* 15 (4) 582-590

Wikipedia (2020) Hijra (South Asia) [https://en.wikipedia.org/wiki/Hijra_\(South_Asia\)](https://en.wikipedia.org/wiki/Hijra_(South_Asia))

Wikipedia (2020) [Transsexual: terminology](#)

* Zeluf, G., Dhejne, C., Orre, C., Mannheimer, L.N., Deogan, C., Höjjer, J., & Thorson, A.E. (2016). Health, disability and quality of life among trans people in Sweden—a web-based survey. *BMC public health*, 16(1), 903.

Zucker, K.J. (2017) [Epidemiology of gender dysphoria and transgender identity](#). *Sex Health*. 14(5):404-411

Figure 1
Four Qualities of Life

	<i>External Life Qualities</i>	<i>Internal Life Qualities</i>
<i>Life Chances</i>	Livability of environment	Life-ability of the person
<i>Life Results</i>	Utility of life	Satisfaction with life

Source: Veenhoven: 2000, 2020c

Figure 2
Four kinds of satisfaction

	<i>Passing</i>	<i>Enduring</i>
<i>Parts of life</i>	Pleasure	Domain satisfaction
<i>Life as-a-whole</i>	Peak experience	Life-satisfaction (happiness)

Source: Veenhoven 2020c, chapter 2

Figure 3

Start page of the World Database of Happiness, showing the structure of this findings archive.

WORLD DATABASE OF HAPPINESS
Archive of research findings on subjective enjoyment of life

This Database Collections Search Reports Related sources Research field FAQs About us Sponsors

WHAT IS THE WORLD DATABASE OF HAPPINESS?

The World Database of Happiness is an archive of research findings on subjective enjoyment of life. It restricts to data that fit a precise definition of happiness. Research results are presented on 'finding pages' in a standard format and using a standard terminology. Two kinds of findings are involved: 'distributional findings' on how happy people are in particular times and places and 'correlational findings' on the things that go together with more or less happiness. The findings can be sorted in several ways, such as on population, methods used and investigated correlates. The database is meant to facilitate the accumulation of scientific knowledge on happiness.

RESEARCH LITERATURE ON SUBJECTIVE WELL BEING

SELECTION ON CONCEPT

BIBLIOGRAPHY OF PUBLICATIONS **13431**

SELECTION ON VALID MEASUREMENT

EXTRACTION OF RESEARCH FINDINGS

HOW HAPPY PEOPLE ARE

12477 DISTRIBUTIONAL FINDINGS

WHAT GOES TOGETHER WITH HAPPINESS

16571 CORRELATIONAL FINDINGS

EHERO
The World Database of Happiness is based in the Erasmus Happiness Economics Research Organization EHERO of Erasmus University Rotterdam in the Netherlands. Director Riut Veenhoven

Erasmus
ERASMUS UNIVERSITEIT ROTTERDAM

Figure 4

Example of a findings page in the World Database of Happiness

Direct link <https://worlddatabaseofhappiness.eur.nl/correlational-findings/26480/>



WORLD DATABASE OF HAPPINESS

ARCHIVE OF RESEARCH FINDINGS ON SUBJECTIVE ENJOYMENT OF LIFE

▶ This database ▶ Collections ▶ Search ▶ Reports ▶ Related ▶ Research Field ▶ FAQs ▶ About us ▶ Join us

Study [Drydakis \(2016\): study GB 2012](#) [print](#)

Public:	Transgender men and women, before and after sex reassignment surgery, UK, 2012-2014
Survey name:	Unnamed study
Sample:	
Respondents:	N = 40
Non Response:	
Assessment:	Interview: face-to-face Selected subjects were interviewed twice a year 2012-2014

Correlate

Authors's label	change happiness after (vs before) sex reassignment
Our Classification	HEALTH: TREATMENT MEDICAL » Medical career » Earlier medical treatment » Earlier sexe reassignment HEALTH: TREATMENT MEDICAL » Illness treated » Gender disphoria: medical sexe reassignment » Kind of sexe reassiognment » female to male, male to female HEALTH: TREATMENT MEDICAL » Illness treated » Gender disphoria: medical sexe reassignment » Phase of sexe reassignment
Operationalization	Happiness assesed at T1: Before sex reassignment surgery T5: After sex reassingment surgery 0: female to male 1: male to female

Observed Relation with Happiness

Happiness Measure	Statistics	Elaboration / Remarks																																	
<u>O-SL?-?-sq-v-5-c</u>	<u>DM</u> = +	<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="5">Mean Happiness 1-5</th> <th rowspan="2">Difference</th> </tr> <tr> <th>T1</th> <th>T2</th> <th>T3</th> <th>T4</th> <th>T5</th> </tr> </thead> <tbody> <tr> <td>Female->male</td> <td>2.17</td> <td>2.35</td> <td>2.52</td> <td>2.70</td> <td>3.11</td> <td>+0.96</td> </tr> <tr> <td>Male->female</td> <td>2.78</td> <td>2.95</td> <td>3.04</td> <td>3.21</td> <td>3.39</td> <td>+0.61</td> </tr> <tr> <td>- difference</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>+0.35</td> </tr> </tbody> </table>		Mean Happiness 1-5					Difference	T1	T2	T3	T4	T5	Female->male	2.17	2.35	2.52	2.70	3.11	+0.96	Male->female	2.78	2.95	3.04	3.21	3.39	+0.61	- difference						+0.35
	Mean Happiness 1-5					Difference																													
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<u>O-SL?-?-sq-v-5-c</u>	<u>r</u> = +	Female to male $r = +0.63$ (01) N = 17 Male to female $r = +0.38$ (01) N = 23 - Difference +0.25																																	
<u>O-SL?-?-sq-v-5-c</u>	<u>Chi²</u> = +	Female to male $\text{Chi}^2 = 13.87$ (02) Male to female $\text{Chi}^2 = 9,34$ (00)																																	
<u>O-SL?-?-sq-v-5-c</u>	<u>DM</u> = +	Female to male: <table border="1"> <thead> <tr> <th></th> <th>M</th> <th>SD</th> <th>CI95</th> </tr> </thead> <tbody> <tr> <td>T5</td> <td>3.12</td> <td>0.48</td> <td>[2.87-3.37]</td> </tr> <tr> <td>T1</td> <td>2.18</td> <td>0.64</td> <td>[1.85-2.51]</td> </tr> <tr> <td>- difference</td> <td>+0.94</td> <td>(00003)</td> <td></td> </tr> </tbody> </table>		M	SD	CI95	T5	3.12	0.48	[2.87-3.37]	T1	2.18	0.64	[1.85-2.51]	- difference	+0.94	(00003)																		
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<u>O-SL?-?-sq-v-5-c</u>	<u>gH</u> = +1.6	Female to male $gH = 1.66$																																	
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The World Database of Happiness is based in the [Erasmus Happiness Economics Research Organization EHERO](#) of [Erasmus University Rotterdam](#) in the Netherlands. Director: [Ruut Veenhoven](#).



Table 1

17 empirical studies included in this research synthesis

People, place, year	Sampling	Non-response drop-out	N	Measure of happiness	Source
Patients of gender clinic and controls, Spain, 201?	All patients invited	Not reported	71 (of which 31 trans)	Satisfaction with Life	Cardenas Blanco et al 2019
Transgender women with neo-vagina, followed 1-year post surgery, Netherlands, 2011-15	All patients invited	55%	82	Satisfaction with Life Happiness Best-Worst Life	Buncamper 2016
FTM transsexuals followed 5 years since start of treatment, 2001-2008, Netherlands and Germany	All patients invited	12.3%	50	Affect balance	Constantino et al 2013
Transgender people, Australia and New Zealand, 2006-7	Snowball sample		253	Happiness	Couch et al 2008
Transgender men and women (working), before and after sex reassignment surgery, UK, 2012-2014	Self-selected		40	Satisfaction with life	Drydakis 2016
Transsexuals after sex reassignment surgery, Sweden, 1971-2001	All patients invited	66%	90	Satisfaction with life	Eldh et al 1997
Hetero-, bi and homosexual transgender and cisgender men, Poland, 2015	Self-selected		117 (of which 34 trans)	Satisfaction with life	Gerymski 2017
Transgender people and cisgender controls, Poland, 201?	Snowball sample		355 (of which 124 trans)	Satisfaction with Life	Gerymski 2018
Transgender people, USA, 2017	Snowball sample		207	Affect balance	Holt et al 2019

Female-to-male transgender people, Australia, 2013	Snowball sample		220	Satisfaction with life	Jones et al 2015
Transsexuals, in treatment and after treatment, Netherlands, 198?	All patients treated at gender clinic invited	24.6%	141	Feel happy	Kuiper & Cohen-Kettenis 1988
Transgender women undergoing gender reassignment surgery, Sweden, 2003-2015	All patients invited	Not reported	190	Time happy	Lindqvist et al 2017
Trans women 1-10 years after sex-reassignment surgery, Essen, Germany, 200?	All patients invited	50.1%	52	Satisfaction with life	Löwenberg et al 2010
Transgender people, UK and Ireland, 2012	Snowball sample		746	Satisfaction with life	McNeil et al 2012
Pre-surgery patients of a gender clinic and controls Spain, 201?	All patients invited	Not reported	101 (of which 61 trans)	Satisfaction with Life Fordyce Happiness Measure	Rabito-Alcon & Rodríguez-Molina 2016
Male to female transgenders followed 15 months after surgical construction of a neo-vagina, France, 1995-2005	All patients invited	52%	22	Quality of life	Revol et al 2006
Transgender women with high HIV risk, San Francisco, USA, 2010	Snowball sample		312	Quality of life	Thompson et al 2015
Transgender women after surgical creation of a neo-vagina, Netherlands, 2011	All patients invited	44%	9	Best-Worst Life	VanderSluis et al 2016
Transgender people, Sweden, 2014	Snowball sample		776	Quality of life	Zeluf et al 2016

Table 2**8 distributional findings on *level* and *dispersion* of happiness among self-identified transgenders recruited from LGBT communities****Absolute and relative to compatriots or controls.** Happiness on range 0-10

Country/time	Happiness question	N (transgender)	Happiness of transgenders		Happiness of compatriots		Difference	
			Mean	SD	Mean	SD	Mean	SD
Australia + New Zealand 2006-7	Happy with life	253	6,09	2,03	7,24 ⁴	1,87	-1,15	+0,16
Australia 2013	Life satisfaction	220	5,63	3,16	6,89	2,28	-1,26	+0,88
Poland 2015	Life satisfaction	34	4,82 ⁵	3,63	6,76	2,18	-1,94	+1,45
Poland 2013	Life satisfaction	124	5,49 ⁵	3,73 ⁶	7,30	n.a.	-1,81	
Sweden 2014 ⁷	Quality of life	776	56%		86%		-30%	
UK 2014	Life satisfaction	40	5,09	1,90	7,27	2,06	-2,18	-0,16
UK + Ireland 2012	Life satisfaction	745	6,48	4,20	7,35	2,01	-0,87	+2,19
USA 2010	Quality of life	312	6,73	2,57				
USA 2017	Affect balance	207	5,30	n.a.	7,15	n.a.	-1,85	
Average⁸		1935	5,70	3,03	7,14	2,08	-1,58	+0,90
Weighted average⁸			6,13	3,36	7,23	2,03	-1,10	+1,23
					Happiness in matched controls			
Poland 2015	Life satisfaction	34	4,82 ⁵	3,63	7,71 ⁵	3,39	-2,89	+0,24

⁴ Data New Zealand, assumed to be similar in Australia⁵ Average of four questions of Satisfaction with life scale⁶ Average of standard deviation for men and women⁷ % happiness >6⁸ Data for Sweden could not be used in calculating the average

Poland 2013	Life satisfaction	124	5,49 ⁵	3,73 ⁶	8,38 ⁵	2,93 ⁶	-2,89	+0,80
Average		158	5,16	3,68	8,06	3,16	-2,89	+0,52
Weighted average			5,35	3,71	8,24	3,03	-2,89	+0,68

Table 3**1 distributional finding on happiness among self-identified trans people who made any transition or not**

Absolute and relative to compatriots of the same sex. Happiness on range 0-10

Transition	Country/year	Happiness of transgender people		Happiness of compatriots		Difference	
		<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
No want	UK & Ireland 2012	<u>6,57</u>	<u>4,10</u>	<u>7,35</u>	<u>2,01</u>	-0,78	+2,09
Considers		<u>4,05</u>	<u>4,40</u>			-3,30	+2,39
In process		<u>6,28</u>	<u>4,35</u>			-1,07	+2,34
Completed		<u>8,19</u>	<u>3,40</u>			+0,84	+1,39
Unsure		<u>4,63</u>	<u>4,45</u>			-2,72	+2,44

Table 4

1 distributional finding on happiness of transgender people following social transitions

Absolute and relative to compatriots of the same sex. Happiness on range 0-10

Transition	Country/year	Happiness of transgender people		Happiness of compatriots		Difference	
		Mean	SD	Mean	SD	Mean	SD
Behavioral							
Cross-dressing <ul style="list-style-type: none"> In hiding only Incidentally in public Permanent 							
Change of name							
Use public toilet of experienced gender							
Adopt typical behaviors of experienced gender							
.....							
Legal							
Changed sex in civil registration	Sweden, 2014 ⁷	79%		86%		-7%	
Changed name in civil registration							
Social							
Openness with trans identity <ul style="list-style-type: none"> Always Sometimes 	Sweden, 2014 ⁷	65% 55%		86%		-21% -31%	

<ul style="list-style-type: none"> • Rarely • Never 		50% 59%					-36% -27%	
Join trans advocacy groups								
Change gender competition in sports								
Divorce if new gender does not fit marriage								
.....								

Table 5a

10 distributional findings on happiness among transgender people in treatment for physical sex-reassignment

Absolute and relative to compatriots or controls. Happiness on range 0-10

Country/time	Happiness question	N (transgender people)	Happiness of transgenders		Happiness of compatriots		Difference	
			Mean	SD	Mean	SD	Mean	SD
Netherlands 1983 ⁵	Feel happy	61	<u>7,46</u>	<u>1,61</u>	<u>6,75</u>	<u>0,77</u>	-0,07	+0,84
Spain 2011	Life satisfaction ⁹	61	<u>4,03</u>	<u>2,98</u>	<u>6,91</u>	<u>2,32</u>	-2,88	+0,66
	Happiness		<u>5,11</u>	<u>3,01</u>	<u>7,59</u>	<u>1,87</u>	-2,48	+1,14
Spain 2014	Life satisfaction ⁹	31	<u>5,29</u>	<u>3,23</u>	<u>6,94</u>	<u>1,98</u>	-1,65	+1,25
Sweden 2015	Time happy	164	<u>5,57</u>	<u>2,98</u>	<u>7,80</u>	n.a.	-2,23	
UK 2014	Life satisfaction	40	<u>4,14</u>	<u>1,53</u>	<u>7,27</u>	<u>2,06</u>	-3,13	-0,53
Average		357	5,41	2,28	7,20	1,72	-1,80	+0,62
Weighted average			5,54	2,61	7,39	1,65	-1,84	+0,96
					Happiness in matched controls			
Spain 2011	Life satisfaction	61	<u>4,03</u>	<u>2,98</u>	<u>6,49</u>	<u>2,22</u>	-1,84	+0,76
	Happiness		<u>5,11</u>	<u>3,01</u>	<u>6,77</u>	<u>1,85</u>	-1,66	+1,16
Spain 2014	Life satisfaction	31	<u>5,29</u>	<u>3,23</u>	<u>6,30</u>	<u>2,27</u>	-1,01	+0,96
Average		92	4,93	3,11	6,47	2,15	-1,38	+0,96
Weighted average			4,81	3,07	6,52	2,11	-1,71	+0,96

⁵ Average female->male and male->female

Table 5b
10 distributional findings on happiness after physical sex-reassignment

Absolute and relative to compatriots or controls. Happiness on range 0-10

Country/time	Happiness question	N	Happiness of transsexuals		Happiness of compatriots		Difference	
			Mean	SD	Mean	SD	Mean	SD
Australia + New Zealand 2006-7	Happy with life	99	<u>7,03</u>	<u>2,40</u>	<u>7,24</u> ⁶	<u>1,84</u>	-0,21	+0,56
Germany 2005	Life satisfaction	52	<u>7,01</u>	<u>2,84</u>	<u>6,75</u>	<u>1,84</u>	+0,26	+1,00
France 2005	Quality of Life	22	<u>8,41</u>	<u>2,23</u>				
Netherlands 1983 ⁷	Feel happy	80	<u>7,49</u>	<u>1,66</u>	<u>6,75</u>	<u>0,77</u>	+0,74	+0,89
Netherlands 2011	Best-Worst Life	9	<u>7,90</u>	<u>0,70</u>	<u>7,56</u>	<u>1,29</u>	+0,34	-0,59
Netherlands 2011-15	Best-Worst Life	82	<u>7,09</u>	<u>1,90</u>	<u>7,42</u> ⁸	<u>1,32</u>	-0,33	+0,58
	Life-satisfaction		<u>7,50</u>	<u>2,33</u>	<u>7,49</u>	<u>1,25</u>	+0,01	+1,08
	Happiness		<u>7,22</u> ⁹	<u>2,66</u>	<u>7,44</u>	<u>1,44</u>	-0,22	+1,22
Sweden 1971-2001	Life satisfaction	90	<u>84%</u> ¹³					
Sweden 2015	Time happy	43-107	<u>5,76</u> ¹⁴	<u>2,86</u>	<u>7,80</u>	n.a.	-2,04	
UK 2014	Life satisfaction	40	<u>6,03</u>	<u>1,77</u>	<u>7,27</u>	<u>2,06</u>	-1,24	-0,29
Average ¹⁵			7,11	2,05	7,26	1,52	-0,33	+0,81
Weighted average ¹⁵			6,94	2,28	7,24	1,50	-0,30	+0,78

⁶ Data New Zealand, assumed to be similar in Australia

⁷ Average female to male and male to female

⁸ Average 2011-2015

⁹ Average of three questions

¹³ Percentage content with life situation

¹⁴ Average of three follow-up moments

¹⁵ Data from Sweden 2015 could not be used in calculating average

Table 5c

5 correlational findings on *change* in happiness following physical sex-reassignment

Treatment	Research design			
	Change after treatment		Difference with change in control group	
	Post-treatment	Follow-up	Post-treatment	Follow-up
Hormone treatment	0/0			
Surgery (vs no surgery)				
○ Male to female	+	+/0/-		
○ Female to male	+	0/+		

Table 5d

3 distributional findings on the size of change in happiness following physical sex-reassignment

Treatment	Research design			
	<i>Change after treatment</i>		<i>Difference with change in control group</i>	
	<i>Post-treatment</i>	<i>Follow-up</i>	<i>Post-treatment</i>	<i>Follow-up</i>
Surgery (vs no surgery) ○ Male to female ○ Female to male	+15% +24%	+5%/+0%/-1%		

Table 5e

3 distributional findings on *difference* in happiness between F->M and M->F completed transsexuals

Absolute and relative to compatriots of the same sex. Happiness on range 0-10

Treatment	N	Country/year	Happiness of transsexuals		Happiness of compatriots of same sex		Difference	
			Mean	SD	Mean	SD	Mean	SD
<i>Direction of sex-transition</i>								
Male to female (0)	75	Australia and New Zealand 2007	6,95	2,53	7,88	1,73	-0,93	+0,80
Female to male (1)	24		7,28	1,63	7,65	1,71	-0,37	-0,08
- difference			+0,33	<u>-0,90</u>	-0,23	-0,02	+0,56	-0,88
Male to female (0)	55	Netherlands 1983	7,35	1,69	6,66	n.a.	+0,69	
Female to male (1)	25		7,80	1,55	6,85	n.a.	+0,95	
-difference			+0,45	-0,14	+0,19		+0,64	
Male to female (0)	23	UK 2014	6,43	1,86	7,02	2,52	-0,59	-0,66
Female to male (1)	17		5,49	1,47	7,02	2,42	-1,53	-0,95
-difference			-0,94	-0,39	0	-0,10	-0,94	-0,29
Average (difference)			-0,05	-0,48	-0,01	-0,06		

Table 5f

3 distributional findings on happiness of transsexuals after particular surgical¹⁰ sex-reassignment treatments

Absolute and relative to compatriots of the same sex. Happiness on range 0-10

Treatment	Country/year	N	Happiness of transsexuals		Happiness of compatriots of same sex		Difference	
			Mean	SD	Mean	SD	Mean	SD
<i>Male to female surgical treatments</i>								
Breast augmentation								
Neo-vagina	Germany 2005	52	7,01	2,84	6,75	1,84	+0,26	+1,00
	France 2005	22	8,41	2,23	n.a.	n.a.		
	Netherlands 1983	55	7,35	1,69	6,66	n.a.	+0,69	
	Netherlands 2011	9	7,90	0,70	7,56	1,29	+0,34	-0,59
	Netherlands 2015	82	7,25¹¹	2,66	7,60	n.a.	-0,57	
	Sweden 2015			5,76	2,86	n.a.	n.a.	
UK 2014	23		6,43	1,86	7,02	2,52	-0,59	-0,66
Voice reconstruction								
<i>Female to male surgical treatments</i>								
Removal of breasts								
Removal of uterus								
Removal of breasts and uterus	Netherlands 1983	25	7,80	1,55	6,85	n.a.	+0,95	
Neo penis	UK 2014	17	5,49	1,47	7,02	2,42	-1,53	-0,95
Voice correction								

¹⁰ Surgical treatments are typically preceded by pharmacal hormone treatment

¹¹ Average of nine questions

Table 6
6 research findings on *correlates* of happiness among transgender people

Conditions for happiness	Research design				
	Cross-sectional	Longitudinal			
		Change after treatment		Difference with change in control group	
		Post-treatment	Follow-up	Post-treatment	Follow-up
Personal behaviour					
Openness with trans identity	+				
Religiosity	+				
Gender identity					
Identification with new sex	+				
Personality traits match with gender identity	+ / + / + / -				
Trans masculine (vs trans feminine)	-				
Trans nonbinary (vs trans binary)	-				
Social acceptance					
Legal gender change realized (vs wants legal change)	+				
Having a confidant	+				
Social support	+				
Satisfaction with friends	+				
Comfort with public perception	+				
Confidence in gender expression	+				

and acceptance by society					
Amenities in vicinity	+				
Health					
Health status	+/- +				
Health domain ratings	+				
No negative health care experiences	+				
Mental health	+				
No adverse mental health symptoms	+/+				
Work					
Job satisfaction	+/+ +/+				
Employment (vs unemployed)	+				
Education	+				
Income	+/+/+				
Body					
Comfort with sex characteristics	+				
Sexual function	+				
Genital self-image	+				
Functional result of SRS	+				
Esthetical result of SRS	+				
Demographics					
Population density (high vs low)	+				

Age	+/+/+/+				
Use of stimulants					
Tobacco use	-				
Alcohol risk use	-				
Illicit drug use	-				
Sexual orientation					
Hetero					
Homosexual					
Bi-sexual					
A-sexual					

Signs link to finding page in [World Database of Happiness](#). Use control+click to view the page.

Signs indicate observed differences

+ = positive difference, significant

+ = positive difference, not significant

0 = no difference

- = negative difference, not significant

- = negative difference, significant