

HAPPINESS IN TRANSGENDER PEOPLE

A research-synthesis using an on-line findings-archive^{1, 2}

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ABSTRACT

Background: A considerable minority of humans does not feel comfortable with their assigned gender at birth and part of these people experience gender dysphoria. Today, transgender people have several options to live more in accordance with 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 hormone therapy or gender affirming surgery. This faces them with the choice whether 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 social transition only? 4) How happy are transgender people who also opted for medical transition? 5) What kinds of people profited most and least from a medical transition happiness wise? 6) In what conditions are transgender people the most and least happy?

Method: We took stock of the available research. We found 19 reports of studies on happiness in transgender people, which together yielded 51 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 'finding page' with a unique internet address. We use links to these on-line finding pages, which allows us to summarize the findings in a few tabular schemes

Results: In contemporary western nations, the average happiness of trans people is just above neutral and 11% lower than among their compatriots. The spread around that mean is high, which means that some transgender people are quite happy and some quite unhappy. The happiness of transgender people who underwent a medical transition is close to the happiness of their compatriots, only about 3% lower

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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on average. The happiness of all transgender people depends much on social acceptance.

There is almost no research on the effects on happiness of social gender-transitions only. Almost all the findings concern medical transition, which is sought only by some transgender people.

Keywords: transgender, sex-reassignment therapy, gender affirming surgery, hormone replacement therapy, social transition, medical transition, 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. 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 people who experience significant distress because of the mismatch between their anatomic sex and experienced gender identity. A more positive and inclusive way to describe the experiences of all transgender people is the term 'gender incongruence'. 'Gender variance' is sometimes used to refer to gender incongruent people who do not experience distress because of their gender incongruence (Beek 2016).

1.1 Prevalence of gender ambivalence, gender incongruence and gender dysphoria

A population-based study (N=151456) conducted in 2014 in the United States found that 0,53% *identified as transgender*. Of these, 0.16% was assigned at birth as a female but identified as a man male, while 0.28% was born in a male body but identified as a woman. The rest (0.08%) did not identify as either a man or a woman (Crismann 2017). A drawback of the question used in this study is that it might miss people who do not know the concept 'transgender' well. Other studies have directly asked people to what extent they identify as men or women.

A recent study examined the prevalence of two kinds of gender non-conformity 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' refers 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 study in Japan conducted in 2018 found *gender ambivalence* rates of 6.0% and 5.9% and *gender incongruence* rates of 0.93% and 1.0% for people assigned male (N=7827) and female (N=8903) at birth, respectively. Additionally, *gender dysphoria* was measured. Gender dysphoria in combination with an ambivalent gender identity was found in 0.87% and 1.1% of the assigned males and females at birth. Gender dysphoria in combination with incongruent gender was found for 0.27% and 0.35% respectively. The authors conclude that "neither incongruent gender nor ambivalent gender are a good predictor of gender dysphoria" (Oshima 2022).

In 2014, Ahs et al (2018) conducted a population survey in Stockholm County, Sweden. They found that for participants who were classified male (N=21586) and

female (N=28571) at birth 2.1% and 2.5% were at least somewhat sure that they felt like someone of a different sex, respectively. 0.9% and 1.0% were quite sure or absolutely sure. 0.6% and 0.4% of assigned males and females were at least somewhat sure they had a desire for physical treatment, and 0.2% of both sexes was at least quite sure.

These small percentages denote a lot of people; e.g., 0.2-1.0% gender dysphoria in the population means that 1.5 to 7.5 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 were either bear it, often combined with concealment, or try to live according to one's gender as far as society permits. An example of a socially accepted way of dealing with gender incongruence 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 incongruence is widely available.

Social transition

Transgender people can *behave* as their experienced gender, such as in dressing and role taking and by changing their name. Though not always welcomed, this is not forbidden in most countries. 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 *medical transition*. This option is increasingly used; 'gender clinics' exist in most modern nations and applications for treatment have risen substantially (Wiepjes et al. 2018).

A recent meta-analysis of 12 clinical studies resulted in an estimate of 0,005% of the general population in the Netherlands seeking medical transition; 0,007% for male to female transition and 0,003% for female to male. Time-analysis found an increase in reported prevalence over the last 50 years (Arcelus et al. 2015). In 1990, the prevalence of transgender women and men who sought medical treatment at the main gender clinic in the Netherlands was 0.008% and 0.003%, respectively. In 2015, these numbers had risen to 0.019% and 0.026% (Wiepjes et al. 2018). These rates are much lower than self-reported transgender identity or gender dysphoria and wish for medical treatment (cf. Section 1.1). Applications to gender clinics continue to increase, and it is uncertain how the current rates of medical treatment

compare with self-reported transgender identity.

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 other trans people 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 gender dysphoric middle aged married people with children.

This information is the most required for gender dysphoric people who consider medically transitioning. Since that kind of transition is both very demanding and often 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 useful for the professionals involved in the treatment of gender dysphoria, to help their patients evaluate which choices have the potential to lead to greater happiness.

1.4 Earlier research on well-being of transgender people

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

Social gender transition

Behavioral 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 variance 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.

Medical gender transition

Medical transitions have been studied since the first treatments in the early 1900s, among other things to justify this debated treatment. Well-being is a main outcome variable in this medical effect research.

The first strand of research on outcomes of medical transitions draws on

clinical samples of patients of gender clinics in hospitals, who were followed after treatment. The focus of that initial research is on negatives, mental complaints, 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 transgender people, 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 than ‘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, provides 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 gender transition 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 only opted for social gender transition?
- 4) How happy are transgender people who additionally opted for medical transition?
 - a. Did a medical transition make these people happier?
 - b. What treatments affected these people the most/least?
 - c. What kinds of people profited most/least from medical transition?
 - d. How much did their happiness depend on the success of the treatment?
- 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 transgender people.

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 well-being. 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 2022a), 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

As noted above in section 1.1, the term ‘transsexual’, which was first used in the 1920s for the first people who had undergone a medical transition. 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. Some transgender people also seek a medical transition, though hormone treatment and surgery (cf. section 1.2). We refer to these people as ‘having medically transitioned’ instead of the old and debated term ‘transsexual’.

2.1.2 Measurement

It is easy to identify people *who underwent a medical transition*, since most of these people figure in medical records. Whether or not one medically transitioned can also be measured using self-reports in survey studies.

It is more difficult to identify *transgender* people who did not (yet) apply for medical transition. The wider and shifting connotations of the term ‘transgender’ poses 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.

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.

2.1.3 *Types of transgender people*

Transgender people can be characterized using the following dichotomies

Made a change - Did not make a change

Some trans people cope with the experienced gender incongruency by reducing the discomfort without changing their situation. Coping may involve acceptance of being different or defensive denial. Other trans people seek to change their situation either in just social transition or also medical transition.

In the closet – Out of the closet

Awareness of gender incongruence will usually develop gradually. When acknowledged, some transgender people opt to remain 'in the closet', while others 'come out'. The term 'stealth' is used for people who already live as their experienced gender and remain silent about their transgender identity.

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, called a 'trans man'. Similarly, a person who was assigned male at birth with a female gender identity is called a trans woman.

Non-binary transgender individuals are people with a gender identity other than 'man' or 'woman'. This can mean that their gender identity is something in between 'man' and 'woman' or neither. Terms used for non-binary people 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'. Important parts of this shift can include changing one's name and pronouns. After coming out, transgender men typically want to be addressed with the pronoun 'he' and transgender women with 'she'. Non-binary individuals often prefer 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 women.

Social gender transition can also involve the 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. Some countries include options for non-binary transgender, such as an X for sex in their passport

Medical gender transition

Medical transition consists of hormone replacement therapy and surgeries. People who medically transitioned can be further divided into female-to-male (FtM) and male-to-female (MtF) individuals. 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 non-binary transgender people can choose to transition medically as well. Some of them want to obtain an androgynous looking body through medical transition, 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 non-binary gender. In this paper, we define the terms MtF and FtM to include both binary and non-binary transgender people who have undergone some form of medical transition.

FtM medical transition often involves testosterone treatment, which results in the lengthening of the vocal cords resulting in a lower voice, facial and body hair growth, increased muscle mass, body fat redistribution, clitoral growth, menstruation stop and increased sex drive. Surgeries for FtMs include mastectomy, hysterectomy, phalloplasty and metoidioplasty.

The hormone replacement therapy of MtFs consists of estrogen and testosterone blockers. Main effects include muscle mass loss, increased body fat, softening of the skin, fat redistribution, breast development, reduced facial and body hair growth and decreased sex drive. 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 creation of a neo-vagina.

2.2 Happiness

Over the ages, the term 'happiness' has been used to denote different meanings and often 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 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 that to others. Feeling well typically signals that we are doing well, that our innate needs a being gratified.

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 transgender people 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 (2022c). 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).

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 commonly used direct single question on current happiness 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 (2022c). 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 he 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 choose gender 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 be inserted to provide readers with technical detail about the findings reviewed. 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 (August 2022), the [Bibliography of Happiness](#) lists 15859 publications of which 8201 report an empirical study that has used a valid measure of happiness. (Veenhoven 2022b).

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 project of [Erasmus University Rotterdam](#) in the Netherlands, and is based in the Erasmus Happiness Economics Research Organization [EHERO](#). The structure of this finding archive is shown on [Figure 3](#). A recent description of this novel technique for the accumulation of research findings can be found with Veenhoven (2022a). Details on the notation of findings is given [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 finding page is given in [Figure 4](#). In this research synthesis we use links to such online finding pages.

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 (cf. section 2.2.4). 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 transgender people

Studies found

To date (August 2022), the database includes 19 studies in which the happiness of transgender people had been assessed. These reports were published between 1988 and 2019. Together, these studies give 51 ‘findings’ since several studies report more than one result. A list of these studies is presented in [Table 1](#).

People investigated

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

Organization of the findings

We sort the findings in two ways: 1) by aspects of transgenderism and 2) by the research methods used. See [Table 2](#).

Presentation of the findings

In the results section (4) of this paper, we present findings in tables and link figures in cells of these tables to on-line finding pages with technical detail. For example, in Table 2, we used links to observed means and standard deviations of happiness among transgender people as well as links to observed distribution of happiness among the general population in the same country and period.

In Table 5c, we summarized 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** ($p < 0.05$). Likewise in table 7 we summarize observed correlates of happiness among transgender people using + and – signs.

Links to online detail

All these numbers and signs in the tables link to finding pages in the World Database of Happiness, which serves as an on-line appendix in this paper. If you click on a linked finding, the corresponding finding page will open on which you can see full details on the observed relationship; 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 4](#).

This technique allowed 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.

Next to links in tables, we also use links to studies in the text. Such links lead to a 'study page' in the World Database of Happiness, on which the reader finds more detail about the investigations and a link to the full text of the report. All publications from which linked findings and study descriptions are taken are also presented in the list of references at the end of this paper.

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. 4) Such overviews can easily be updated.

Disadvantages

1) Considerable investment is required to establish a finding 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 numbers + 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 narrative reviewing

Narrative 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, narrative reviews are vulnerable to interpretations made by the reviewer. Methodological variation can escape the eye. If there are many findings on a subject, there is a risk of 'cherry picking' by reviewers.

Another difference is that the conceptual focus of narrative reviews in this field is often loose, covering fuzzy notions of 'well-being' rather than a clearly defined concept of 'happiness' as described in section 2.1.1. This blurs the readers

perspective of what the data describe. A related difference is that reviewers 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 on-line access to full detail about the research findings considered, presented in a standard format and terminology, while common 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 transgender people, a further difference is that the available data do not allow application of advanced methods of statistical meta-analysis, the numbers being too small and the data too heterogenous.

4 RESULTS

After these preliminary steps we can now answer the research questions raised in section 1.6 one by one. We, use 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 trans people is presented in column 4, while dispersion around the means is presented in column 5. 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 an [equivalent](#) question. For that purpose, we used the collection of distributional findings on [happiness in nations](#) of the World Database of Happiness. These comparison data are presented in the columns 6 and 7, with the difference with transgender people presented in the columns 8 and 9. In the bottom rows of Table 2, we also presented the results of two studies that had assessed happiness in a matched control group. All these distributional 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 4 of table 2. The weighted mean of the means observed in these 10 studies is 6,13 on scale 0-10. 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 5 we see that the *dispersion* of happiness among transgender people is quite high with an average standard-deviation of 3,36. So, not all transgender people are 'neither happy nor unhappy, but a considerable part of them is either 'happy' or unhappy'.

Relative happiness

In column 6 of [Table 2](#) we see that the *level* of happiness tends to be higher among compatriots (1,1) and is also higher among controls (2,9). So, trans people are 11% to 29% less happy on the happiness scale.

In column 9 we see that the dispersion of happiness tends to be higher among trans people than among compatriots. The difference is +1,2. Likewise, the dispersion was higher in comparison to matched controls, the difference of standard deviations being 0,68. So, inequality of happiness among trans people was 14% to 24% higher on the possible range of the standard deviation on scale 0-10.

Below in the section 4. we will see similar patterns among specific kinds of trans

gender people. In section 5.2, we will discuss whether these differences should be regarded big or small.

4.2 How happy are the different kinds of transgender people?

On [Table 3](#) we present the results of a study in Sweden where happiness was compared across different types of transgender people. Transvestites were the happiest, both absolutely and relatively.

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

On [Table 4](#) we summarize the results of a study in which average happiness for different stages of transition are compared ([McNeil et al 2012](#)). Among the people who pursued a medical or social transition, average happiness appeared to be higher, the further on the path, with people who completed (part of) a transition being happiest. People who considered or were unsure about transitioning were the least happy. People who did not want to transition were reasonably happy, but not as happy as those who underwent a social or medical transition.

4.4 How happy are transgender people who made a social transition?

As we have seen in section 1, many transgender people do not undergo a medical transition. Most 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 these transgender people.

Following the structure of Table 2, we devised [Table 5](#) on which we listed various possible forms of social gender transitions in the left column 1. Swedish transgender people who have changed their sex in civil registration are fairly happy on average. They are happier than those who were not able to change their gender. Likewise, transgender people who are always open about their transgender identity were significantly happier than those who are sometimes open, rarely open or whose transgender identity is visible. Cross-dressers appeared to be fairly happy. In all cases, these transgender people were less happy than the average citizen in Sweden.

All other rows in Table 5 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.

4.5 How happy are transgender people during and after a medical transition?

On the [Tables 6a](#) to [6g](#) we summarize the findings on the happiness of the people over different phases and variants of the process of medical transition.

Patients of a gender clinic

[Table 6a](#) 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 to treatment for bringing their body in accordance with their experienced gender identity.

The *absolute* level of happiness in this population is 5,41 as one can see at the bottom column 4. 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 2.28, as we can see at the bottom of column 5. 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.

Finished medical transition

On [Table 6b](#) we report a similar analysis, now limited to patients who have undergone a medical transition. The *absolute level* of happiness in this population is 7,11, as one can see at the bottom of column 4. The average *dispersion* around the mean is again high, with a standard deviation of 2.05

Relative to compatriots, transgender people who medically transitioned are almost as happy, as appears in an average difference of -0,30 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.

Comparability is limited due to variation in selectivity of the samples and social conditions in nations and times. We can learn more about the effect of medical transitions on happiness from the follow-up studies to be presented in the next section 4.6.

4.6 Did a medical transition make transgender people happier?

Demonstration of causality requires follow-up of the same persons over time, before and after treatment. Such indications for causality are presented in the columns 3 and 4 of [Table 6c](#), which report changes in happiness right after treatment and later follow-up. Only one study assessed hormone treatment by itself, finding that it did not affect median happiness after one year. Multiple studies find that hormone therapy combined with later surgery tends to be followed by a gain in happiness, as the + signs in columns 3 and 4 show.

A closer look at the finding pages behind these signs reveals considerable variations. The follow-up study of trans women after sex-reassignment surgery 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 trans women back to the level of happiness before the surgery.

4.6.1 *What is the size of the effect on happiness of gender affirming surgery?*

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 6d](#), which is a variant of Table 6c, now restricted to findings for which an effect size could be computed, which was not possible in 2 cases.

Several of the effect sizes in Table 6d are quite substantial, such as the 24% gain in happiness following female to male transition. However, in the next column, we see that the initial 15% gain in happiness after male to female gender affirming surgery was reduced to 5% at 3 years follow up and turned into a 1% loss at 5-year follow-up.

4.6.2 *What kinds of people profited most/least from a medical transition?*

The effects of medical transitions 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 people who medically transitioned from male-to-female (MtF) and female-to male (FtM).

Two of three cross-sectional studies summarized in [Table 6e](#) observed higher happiness among trans men than among trans-women, while one found the reverse. In this latter study, the 17 FtMs considered had been less happy before start of the medical transition but had gained more happiness than the MtFs, as can be seen in the results of the follow-up.

4.6.3 *What specific surgical treatments affected the happiness most/least?*

Gender affirming surgeries differ for trans men and trans women and can be more or less extensive. On [Table 6f](#) we list the most common surgical treatments in column 1. The happiness of trans women who underwent the construction of a neo-vagina was considered in three studies, which all observed fairly high *absolute* levels of happiness. 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.

Among trans men, only one study has assessed happiness after a combination of mastectomy and hysterectomy (removal of breasts and uterus respectively), and another in those who underwent phalloplasty (construction of a neo-penis). Since only one study is available for both options and sample sizes in

the studies are small, no general conclusions can be drawn about the effects on happiness of men who underwent the respective surgeries.

4.6.4 *How much did happiness depend on success of the medical treatment?*

On [Table 6g](#) we present the few findings on this subject. Strong correlations have been found. Yet these success rating are all in the eyes of the treated trans people and will be partly due to reversed causality, happiness affecting the judgement of success.

4.7 **In what conditions are transgender people the most/least happy?**

On [Table 7](#) we present the few available findings on this subject. We summarize the observed correlations in + and – signs and present significant correlations in **bold**. Since it is worth knowing whether these findings are specific for transgender people, we also present comparable relationships observed in samples of the general public. These latter findings are taken from the World Database of Happiness, from which we selected the best comparable correlational finding, considering country, year, measurement and statistics used.

Age

Transgender people in their twenties are happier than those in their teens. Happiness increases with age for all age groups, although not significantly. This linear pattern is surprising, since happiness follows a U curve with age in the general population in the western countries at stake here.

Health

Self rated health goes with greater happiness among transgender people, but less strong as commonly observed in studies in the general population. A study among transgender people who had medically transitioned found this relation only among FtM cases, among which also a stronger correlation with mental health was observed.

Life-situation

As yet only a handful of situational factors have been considered; the correlations observed among transgender tend to be stronger than among the general public

Local population density. Trans people living in highly populated areas were marginally happier than those living areas with a low population density. This suggest that they feel better in urban environments, where social acceptance is less a problem. No such correlation was seen in the general public.

Education. Transgender people tend to be happier when well-educated and the difference with the low educated seems to be greater than commonly observed in the general population; however fully identical comparison data are not available.

Income: A higher income appears to go with greater happiness among transgender people, and the difference with low-income companions seems again greater than in the general public.

Employment. Employed transgender people were found to be considerably happier than their unemployed companions. This difference in happiness was greater than observed in a comparable study in the general public.

Retired. Retired transgender people were happier than their working companions. A similar difference was found in a comparable study in the general public

Immigrant. A study in Sweden found that transgender people born in another country were slightly happier than autochthone transgenders., while studies among the general public typically find immigrants to be less happy than natives. Selective migration may play a role here.

Religion

Average happiness was slightly higher among transgender people who identify as religious, compared to the non-religious. This pattern was also observed in the general public

Satisfactions

Happiness in the sense of satisfaction with one's life as-a-whole typically goes together with satisfaction with domains-of-life. This correlation was also observed among transgender people in the cases of satisfaction with health care, social bonds and work. In the case of satisfaction with work, the correlation was stronger among FtM trans people than among MtFs. A similar difference between males and females has been observed in a general population study.

Social acceptance.

Transgender people who report having social support, both in the emotional and practical sense, are significantly happier than those who don't. The size of the correlation is again greater than in the general public. These findings on intimate relations fit the findings on feeling at ease in public places mentioned in Table 6g.

Use of stimulants

Earlier smoking and current use of drug were found to be negatively related to happiness among transgender people, but heavy drinking was not. Similar correlations have been observed in comparable studies in the general public, with the exception of current illicit drug use, for with we could not find a proper match.

5 DISCUSSION

5.1 Main findings

The available research findings show that average happiness among transgender people was about 6 on scale 0-10 and that they were less happy than cisgender compatriots, the difference being about 1 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 people. This means that a substantial portion of transgender people is either unhappy or quite happy. The existence of a share of happy transgender people means that a satisfying life is well possible in this condition.

Follow-up studies among the group of transgender people who medically transitioned shows that this treatment had added to their happiness, both absolutely and relative to cisgender people. However, the dispersion of happiness is still high among these people, which means that some of them end up less happy.

5.2 Bearing of the happiness deficit and treatment

Transgender people tend to be less happy than otherwise comparable cisgender people; the 1.1-point difference marking 11% 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 medical transition 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 11% happiness deficit among transgender people would require a compensation of about € 2750 extra income per month. Likewise, the 5% (lowest) observed gain in happiness following medical transition equals an increase in monthly income of about € 1.250, while the highest observed gain in happiness after medical transition

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 (2022), research on the effect of gender transition on happiness has limited to effects of medical transition, which option is used by some 10% 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 5. Hence, the available data inform us only about one option.

Still, the combination of two 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 4.2) transgender people who have medically transitioned 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 gender dysphoric 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 transition

The available findings suggest that medical transitions tend to be followed by a raise in happiness, both absolutely and relatively to otherwise comparable cisgender people. However, the spread around the average change is high, which means that some end up less happy (cf. section 4.4).

As yet, the data provide little view on predictors of gain or loss in happiness following gender affirming surgery. 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 male-to-female transition involving surgical construction of a neo-vagina has resulted in a fair degree of 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 medical transition 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 after medical transition?

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 the reader can see in column 3 of Table 1. This non-response can be due to unwillingness to acknowledge that the treatment did not make one any happier. If so, there was less gain in happiness than the percentages in Table 6d suggest. However, it is also possible that after a successful medical transition, people are more inclined to forget about their past. It is also possible that people who experienced a decline in their happiness 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, (0,2-1.0%, cf. section 1.2), the number of afflicted people amounts to millions. As argued in section 5.2, the burden is high. Though the problem is clear, solutions are not by lack of knowledge. What we need in the first place is more research. The following issues should be addressed.

Measures of wellbeing

Future research on the effects of gender-transition 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 datasets is a first step on that path.

Social gender transitions

We are in the dark about the effect on happiness of non-medical gender transitions as illustrated by the empty cells in Table 5. How happy are the hidden transgender people in their closet? How happy are overt transvestites? Answering such questions deserves priority, since they concern the majority of transgender people (cf. section 1.2) and because there is reason to expect that mere social gender transitions do not work out well happiness wise (cf. section 5.3).

Aspects of medical transitions

The many blanks in Table 6f show that we are only at the beginning of charting the effects on happiness of all possible medical treatment modalities. Is a “complete” medical transition preferable, or do transgender people live equally well with a partial transition, such as trans men who only had a mastectomy? How happy are non-binary people who medically transitioned to a binary gender? In particular, few studies focus solely on the effects of hormone therapy, although medical transitions with only hormone treatment and no surgery are common.

Moderators

In section 4.5.2 we could only report on the difference in change of happiness following medical transition for transgender men and women. The available data were indicative rather than conclusive. Evidently, informed choice requires more information about what kinds of people have become more or less happy after a medical transition. Answering 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 medical transition.

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; what should they do?

Provide care

Treatment for gender dysphoria should be part of the regular healthcare, including hormone therapy and gender affirming surgery. This is the case in several developed nations, where the care system also generated much of the knowledge reviewed in this paper, but there are more countries where adequate care is unavailable as yet. While care is available in most developed nations, waiting list are long these days.

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. Considerable advancement has been made recently in several western nations.

Develop knowledge

As noted above in section 5.5, investment in research is required. We are ready to gather the results in coming updates of this paper.

6 CONCLUSIONS

On average, transgender people are not too happy, the average being just around 6 on the 0-10 happiness scale, which is about 11% lower than among otherwise comparable cisgender people in contemporary western nations. The dispersion of happiness is higher among transgender people than among cisgender people, which means that quite some transgender people are either very unhappy or happy. This implies that a satisfying life is possible for transgender people.

The available research findings suggest that medical transitions tend to be followed by a rise in happiness but does not inform us about the effects on happiness of non-medical social gender transitions. As such, the evidence basis on which gender dysphoric people can orient when seeking ways to a more satisfying life is limited.

REFERENCES

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

Åhs, J. W., Dhejne, C., Magnusson, C., Dal, H., Lundin, A., Arver, S., ... & Kosidou, K. (2018). Proportion of adults in the general population of Stockholm County who want gender-affirming medical treatment. *PLoS One*, 13(10), e0204606.

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 de sexología*, 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.
- Crissman, H. P., Berger, M. B., Graham, L. F., & Dalton, V. K. (2017). *Transgender demographics: a household probability sample of US adults, 2014*. *American journal of public health*, 107(2), 213-215.

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

- * Drydak N. (2016) Transgenderism, Sex Reassignment Surgery and Employees' Job-Satisfaction. Köllen T. (eds) *Sexual Orientation and Transgender Issues in Organizations*, 83-99. Springer, Cham.
- * Eldh, J., Berg, A. & Gustafsson, M. (1997) Long Term Follow Up after Sex Reassignment Surgery. *Scandinavian Journal of Plastic and Reconstructive Surgery and Hand Surgery*, 31, 39-45
- * 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. & Wijzen, 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.
- Oshima, Y., Matsumoto, Y., Terada, S., & Yamada, N. (2022). Prevalence of Gender Dysphoria by Gender and Age in Japan: A Population-Based Internet Survey Using the Utrecht Gender Dysphoria Scale. *The Journal of Sexual Medicine*.
- * 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 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. (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. (2022a) *World Database of Happiness: Archive of research findings on subjective enjoyment of life*. Erasmus University Rotterdam. Available at: <http://worlddatabaseofhappiness.eur.nl>

Veenhoven, R. (2022b) *Bibliography of happiness*. World Database of Happiness, Erasmus University Rotterdam. Available at: <https://worlddatabaseofhappiness.eur.nl/collections/bibliography/what-is-this-bibliography-of-happiness/>

Veenhoven, R. (2022c) *Measures of happiness*. World Database of Happiness, Erasmus University Rotterdam. Available at: <https://worlddatabaseofhappiness.eur.nl/collections/measures-of-happiness/what-is-this-collection-measures-of-happiness/>

Veenhoven, R. (2022d) *Correlates of Happiness*. World Database of Happiness, Erasmus University Rotterdam. Available at: <https://worlddatabaseofhappiness.eur.nl/collections/correlational-findings/what-is-this-collection-of-correlational-findings-on-happiness/>

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/tools/whoqol>

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

WHAT GOES TOGETHER WITH HAPPINESS

12477 DISTRIBUTIONAL FINDINGS

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 Ruut 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 reassignment 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
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<u>O-SL?-?-sq-v-5-c</u>	<u>Chi²</u> = +	<p>Female to male $\text{Chi}^2 = 13.87$ (02)</p> <p>Male to female $\text{Chi}^2 = 9.34$ (00)</p>																																	
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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

19 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 transgender people followed 5 years since start of medical 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
Transgender people 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

Transgender men, Australia, 2013	Snowball sample		220	Satisfaction with life	Jones et al 2015
Transgender people, in medical 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
Transgender women 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

Findings on level and dispersion of happiness among self-identified transgender people recruited from LGBT communities Absolute and relative to compatriots or controls. Happiness on range 0-10

Country/time	Happiness question	N (transgender)	Happiness of transgender people		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 ⁵	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 ⁶	3.63	6.76	2.18	-1,94	+1.45
Poland 2013	Life satisfaction	124	5.49 ⁶	3.73 ⁷	7.30	n.a.	-1,81	
Sweden 2014 ⁷	Quality of life	776	56% ⁸		86% ⁸		-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 ⁹	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	
Average ¹⁰		1935	5,70	3,03	7,14	2,08	-1,58	+0,90
Weighted average ¹⁰			6,13	3,36	7,23	2,03	-1,10	+1,23
					Happiness in matched controls			
Poland 2015	Life satisfaction	34	4.82 ⁶	3.63	7.71 ⁶	3.39	-2,89	+0,24
Poland 2013	Life-satisfaction	124	5.49 ⁶	3.73 ⁷	8.38 ⁶	2.93 ⁷	-2,89	+0,80
Average			5,16	3,68	8,06	3,16	-2,89	+0,52
Weighted average		158	5,35	3,71	8,24	3,03	-2,89	+0,68

⁵ Data New Zealand, assumed to be similar in Australia

⁶ Average of four questions of Satisfaction with life scale

⁷ Weighted SD sum of standard deviation for men and women

⁸ % happiness >6

⁹ Originally measured on scale 1-5, reported on reduced scale 1-3, which made transformation to scale 0-10 less reliable

¹⁰ Data for Sweden could not be used in calculating the average

Table 3

Findings on happiness among *types of self-identified transgender people*

Absolute and relative to compatriots. % of people with happiness above 6 on a scale of 0-10.

Transgender type	N	Country/year	% Happy		
			Trans people	Compatriots	Difference
Trans Feminine: anatomic male feeling more female	146	Sweden 2014	57%	86%	-29%
Trans Masculine: anatomic female feeling more male	186		55%		-31%
Gender non-binary: feels male nor female	340		53%		-33%
Transvestite: cross dressers	104		65%		-21%

Table 4**Findings on happiness among self-identified trans people in *phases of social or medical transition***Absolute and relative to compatriots of the same sex. Happiness on range 0-10⁹

Phase	N	Country/year	Average happiness					
			Transgender people		Compatriots		Difference	
			<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
No want	89	UK & Ireland 2012	<u>6,57</u>	<u>4,10</u>	<u>7,35</u>	<u>2,01</u>	-0,78	+2,09
Considers	134		<u>4,05</u>	<u>4,40</u>			-3,30	+2,39
In process	261		<u>6,28</u>	<u>4,35</u>			-1,07	+2,34
Completed	216		<u>8,19</u>	<u>3,40</u>			+0,84	+1,39
Unsure	37		<u>4,63</u>	<u>4,45</u>			-2,72	+2,44

⁹ Originally measured on scale 1-5, reported on reduced scale 1-3, which made transformation to scale 0-10 less reliable

Table 5

Findings on happiness of self-identified 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 • In hiding only • Incidentally in public • Permanent	Sweden 2014 ⁸	65%		86%		-21%	
Change of name							
Use public toilet of experienced gender							
Adopt typical behaviors of experienced gender							
Legal							
Legal gender change • Changed • No need • Wants change • Cannot change	Sweden, 2014 ⁸	79% 74% 43% 47%		86%		-7% -12% -43% -39%	
Changed name in civil registration							
Social							
Openness about trans identity	Sweden, 2014 ⁸						

⁸ % happiness >6

<ul style="list-style-type: none"> • Always • Sometimes • Rarely • Never 		<u>65%</u> <u>55%</u> <u>50%</u> <u>59%</u>		<u>86%</u>		-21% -31% -36% -27%	
Join trans advocacy groups							
Change gender competition in sports							
Divorce if new gender does not fit marriage							
Ect							

Table 6a

Findings on happiness among transgender people *in treatment for medical transition*

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

Country/time	Happiness question	N (transgender people)	Happiness of transgender people		Happiness of compatriots		Difference	
			Mean	SD	Mean	SD	Mean	SD
Netherlands 1983 ⁶	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>2,98⁷</u>	<u>6,91</u>	<u>2,32</u>	-2,88	+0,66
	Happiness		<u>5,11</u>	<u>3,01⁷</u>	<u>7,59</u>	<u>1,87</u>	-2,48	+1,14
Spain 2014	Life satisfaction ⁹	31	<u>5,29</u>	<u>3,23⁷</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>2,98⁷</u>	<u>6,49</u>	<u>2,22⁷</u>	-1,84	+0,76
	Happiness		<u>5,11</u>	<u>3,01⁷</u>	<u>6,77</u>	<u>1,85⁷</u>	-1,66	+1,16
Spain 2014	Life satisfaction	31	<u>5,29</u>	<u>3,23⁷</u>	<u>6,30</u>	<u>2,27⁷</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

⁷ Weighted SD sum of standard deviation for men and women

¹¹ Average female->male and male->female

Table 6b
Findings on happiness among transgender people *after medical transition*
 Absolute and relative to compatriots. Happiness on range 0-10

Country/time	Happiness question	N	Happiness of transgender people		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> ⁵	<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 ¹¹	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> ⁷¹²	<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> ¹³	<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> ⁸		<u>86%</u>		-2%	
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

⁵ Data New Zealand, assumed to be similar in Australia

⁸ % happiness >6

¹¹ Average female->male and male->female

¹² Average 2011-2015

¹³ Average of three questions

¹⁴ Average of three follow-up moments

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

Table 6c
Findings on *change* in happiness among trans people following *medical transition*

Treatment	Change happiness	
	<i>Post-treatment</i>	<i>Follow-up</i>
Hormone treatment	<u>0</u>	
Surgery (vs no surgery)		
○ Trans women (male to female)	+	+ 0 -
○ Trans men (female to male)	+	0 +

Meaning of signs

✚ = positive correlation, significant

+ = positive correlation, not significant

0 = no correlation

- = negative correlation, not significant

- = negative correlation, significant

+|0|- = correlations at three points in time

Table 6d
Findings on the size of change in happiness after *medical transition*

Treatment	% Happy	
	<i>Post-treatment</i>	<i>Follow-up</i>
Surgery (vs no surgery) <ul style="list-style-type: none"> ○ Trans women (male to female) ○ Trans men (female to male) 	+15% +24%	+5%/+0%/-1%

Table 6e

Findings on *difference* in happiness between transgender men and women after *medical transition*

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

Treatment	N	Country/year	Happiness of transgender people		Happiness of compatriots of same sex		Difference	
			Mean	SD	Mean	SD	Mean	SD
<i>Direction of medical transition</i>								
Male to female (0)	75	Australia and New Zealand 2007	<u>6,95</u>	<u>2,53</u>	<u>7,88</u>	<u>1,73</u>	-0,93	+0,80
Female to male (1)	24		<u>7,28</u>	<u>1,63</u>	<u>7,65</u>	<u>1,71</u>	-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	<u>7,35</u>	<u>1,69</u>	<u>6,66</u>	n.a.	+0,69	
Female to male (1)	25		<u>7,80</u>	<u>1,55</u>	<u>6,85</u>	n.a.	+0,95	
-difference			+0,45	-0,14	+0,19		+0,26	
Male to female (0)	23	UK 2014	<u>6,43</u>	<u>1,86</u>	<u>7,02</u>	<u>2,52</u>	-0,59	-0,66
Female to male (1)	17		<u>5,49</u>	<u>1,47</u>	<u>7,02</u>	<u>2,42</u>	-1,53	-0,95
-difference			-0,94	-0,39	0	-0,10	-0,94	-0,29
Average difference Unweighted			-0,05	-0,48	-0,01	-0,06	-0,04	-0,59
Average difference weighted¹⁶			+1,14	-0,52	-0,03	-0,04	+0,18	-0,71

¹⁶ Calculated with total N (ftm + mtf) weights for each study

Table 6f

Findings on happiness after *particular* gender affirming surgical treatments¹⁷

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

Treatment	Country/year	N	Happiness of transgender people		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	7.25¹⁸	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>								
Mastectomy (Removal of breasts)								
Hysterectomy (Removal of uterus)								
Mastectomy and hysterectomy	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

¹⁷ Surgical treatments are typically preceded by pharmacal hormone treatment

¹⁸ Average of nine questions

Table 6g
Findings on happiness and perceived success of *medical transitions*

Aspects of treatment success	Correlation with happiness
Body	
Comfort with sex characteristics	+
Sexual function	+.49
Genital self-image	+.43
Sex with neo-vagina	+.43
Look of neo-vagina	+.24
Identity	
Identification with new sex	+.35
Perceived ability to handle new sex role	+
Feel secure in public spaces	+
Personality match	
Feminine traits	
• Female to Male	-.42
• Male to Female	+.12
Masculine traits	
• Female to Male	+.38
• Male to Female	+.01

Bold = significant

Table 7
Findings on life-situation and happiness among transgender people.
 Compared with such findings in the general public

Life situation	Correlation with happiness	
	Among transgender people	In comparable general publics
Age	+ <u>Linear</u>	- <u>U-shaped</u>
Health		
Self rated health	+ Only among FtM	+
Functional health	+	+
Mental complaints	- Stronger among FtM	- <u>Stronger among females</u>
Life situation		
Local population size	+	0
Education	+	+
Income	+	+
Employed (vs unemployed)	+	+
Retired	+	+
Immigrant	+	-
Religious	+	+
Satisfaction with		
Health care	+	+

Personal relations and support	+	+
Work	+ Stronger among FtM	+ Stronger among males
Social acceptance		
Having a confidant	+	+
Social support available	+	+
Use of stimulants		
Tobacco ever	-	-
Alcohol risk use	0	0
Recent illicit drug use	-	n.a.

Meaning of signs

+ = positive correlation, significant

+ = positive correlation, not significant

0 = no correlation

- = negative correlation, not significant

- = negative correlation, significant

+ \ 0 \ - = correlations at three points in time