Psychiatric characteristics in transsexual individuals: multicentre study in four European countries†

Gunter Heylens, Els Elaut, Baudewijntje P. C. Kreukels, Muirne C. S. Paap, Susanne Cerwenka, Hertha Richter-Appelt, Peggy T. Cohen-Kettenis, Ira R. Haraldsen and Griet De Cuypere

Background
Research into the relationship between gender identity disorder and psychiatric problems has shown contradictory results.

Aims
To investigate psychiatric problems in adults fulfilling DSM-IV-TR criteria for a diagnosis of gender identity disorder.

Method
Data were collected within the European Network for the Investigation of Gender Incongruence using the Mini International Neuropsychiatric Interview – Plus and the Structured Clinical Interview for DSM-IV Axis II Disorders (n = 305).

Results
In 38% of the individuals with gender identity disorder a current DSM-IV-TR Axis I diagnosis was found, mainly affective disorders and anxiety disorders. Furthermore, almost 70% had a current and lifetime diagnosis. All four countries showed a similar prevalence, except for affective and anxiety disorders, and no difference was found between individuals with early-onset and late-onset disorder. An Axis II diagnosis was found in 15% of all individuals with gender identity disorder, which is comparable to the general population.

Conclusions
People with gender identity disorder show more psychiatric problems than the general population; mostly affective and anxiety problems are found.

Declaration of interest
None.

The question of whether gender identity disorder, also known as transsexualism, goes hand in hand with psychiatric problems has been investigated in a number of studies.1–10 Still, the relationship between psychiatric morbidity and transsexualism remains a hot topic for researchers. Furthermore, the classification of gender identity disorder or transsexualism in the forthcoming DSM-5 and ICD-11 as a mental disorder is being questioned.11 The aetiology of gender identity disorder also remains unclear. The relationship between this disorder and psychiatric morbidity is of great clinical importance, as follow-up studies have demonstrated that psychiatric comorbidity is one of the major negative prognostic features for the outcome of gender reassignment surgery.12,13 Furthermore, debate on whether psychiatric comorbidity and psychosocial dysfunctioning are a consequence rather than a cause of gender identity disorder is ongoing. However, research shows contradictory findings concerning the prevalence of coexisting psychiatric problems. Some studies of psychological functioning of individuals with gender identity disorder report a high prevalence of psychiatric comorbidity,1–4 whereas other studies show results comparable with the general population.5–4 Furthermore, differences in psychiatric comorbidity and psychosocial functioning have been described between people depending on the direction of their gender reassignment (male to female v. female to male), and between individuals with early (pre-pubertal) onset and late (post-pubertal) onset gender identity disorder; most studies found more psychological problems in male to female reassignment.2,7–9 whereas Bodlund et al reported more personality disorders in people who had undergone female to male procedures.10 Although there is no single, generally accepted definition of early- and late-onset transsexual development as yet,14 some studies have found that people with late-onset transsexualism showed more psychiatric problems than those with early-onset transsexualism.15

The contradictory findings of the aforementioned studies are due partially to methodological differences, different ways of collecting data and differences in chosen instruments. Moreover, some studies suffer from serious flaws such as selection bias. As long as 30 years ago, Lothstein criticised the lack of systematic assessment and objective data collection.16 During recent decades the quality of research on gender identity disorder has improved substantially, resulting in larger and more reliable data-sets; nevertheless, large, prospective multicentre European studies with systematic data collection are still lacking. Our study is intended to fill this gap as part of the European Network for the Investigation of Gender Incongruence (ENIGI), an international collaboration initiated to set up diagnostic protocols and assessment batteries.17 The major aim of our study was to investigate the prevalence of psychiatric problems in individuals with gender identity disorder seeking gender reassignment therapy. We compared different groups in terms of direction of gender reassignment, time of onset, comparison with the general population and clinic attended.

Method
Four countries participate in the ENIGI network: The Netherlands, Belgium, Germany and Norway.17 Data were collected in Amsterdam, Ghent, Hamburg and Oslo between January 2007 and October 2010. The study was approved by the local ethics committees.

Participants
Adults seeking gender reassignment therapy and surgery at the four gender clinics were asked to participate. Patients were...
excluded from the study if they were experiencing psychosis at the
time of assessment, were under 17 years old or had insufficient
command of the language of the country in which they lived. Both self-
administered questionnaires and clinical interviews were used in
all gender identity clinics. All data were collected within the first
6 months of the diagnostic phase. All clinicians involved were
trained psychologists or psychiatrists with experience in the field
of gender identity disorder.

Measures

Gender identity disorder

Clinicians used a self-constructed scoring sheet with 23 items
based on the DSM-IV-TR symptoms and diagnostic criteria for
gender identity disorder and gender identity disorder in childhood
(see the online supplement to this paper). These items consisted of a combination of a symptom and an ‘aspect’ (severity,
onset, duration, frequency and persistence); see Paap et al for a
detailed analysis of this instrument.

Gender dysphoria

The Utrecht Gender Dysphoria Scale (UGDS) was used to
measure the degree of experienced gender dysphoria.

Axis I disorders

The Mini International Neuropsychiatric Interview – Plus version
5.0.0 (MINI-Plus) was used to measure Axis I diagnoses. This is
a short, structured diagnostic interview for DSM-IV psychiatric
disorders, allowing clinicians to assess Axis I diagnoses at the time
of the interview (‘current diagnosis’) and disorders that have a
longer history (‘current and lifetime diagnosis’). The Structured Clinical Interview for DSM-IV Axis II Personality
Disorders (SCID-II) was used to assess Axis II diagnoses; this is
a semi-structured clinical interview. For logistic reasons the
SCID-II was not administered in the Netherlands. As a
consequence, results regarding Axis II disorders are based on data
from Ghent, Hamburg and Oslo only.

Terminology

In this paper we use the term ‘gender identity disorder’ only when
we refer to the clinical diagnosis.

Onset

Disorders were labelled as ‘early-onset’ when they met both
criteria A and B for a diagnosis of gender identity disorder in
childhood (see the online supplement); if they fulfilled neither
criterion, they were categorised as ‘late-onset’ gender identity
disorder. A residual group comprised cases fulfilling only one
criterion (A or B).

Statistical analysis

Chi-squared tests were used to test for differences in the
occurrence of psychiatric problems among groups. The variables
we tested included: gender (male to female v. female to male),
country (Belgium, Germany; The Netherlands, Norway) and onset
age (early v. late). Analyses were performed separately for Axis I
and Axis II disorders. Axis I disorders were divided into six
clusters: affective, anxiety, eating, substance-related, psychotic
and other disorders. If marked differences were found for a certain
group of disorders, a logistic regression analysis was performed
with the psychiatric disorder as dependent variable and the group
variables as independent variables to gain more insight in the
relative contributions of each of the group variables in predicting
whether or not the disorder was present. All analyses were
conducted using SPSS version 16.0.1 for Windows.

Results

During the inclusion period 846 persons applied for treatment at
the four gender clinics. Of these applicants, 125 were excluded
from the study owing to an insufficient command of the language
of the questionnaires (n = 57, 46%), refusal to participate (n = 37,
30%), clear psychotic symptoms at the time of application (n = 16,
13%) or for other reasons (n = 15, 11%). Consequently, 721
individuals completed at least one diagnostic instrument (Fig. 1).
Some instruments were not completed owing to withdrawal
(failing to attend consultations) or refusal to participate in the
clinical interviews. Sample characteristics with regard to gender
ratio, onset age and age at assessment are shown in Table 1. At the
end of the inclusion period 305 individuals fulfilled criteria
for early- or late-onset gender identity disorder and had been
assessed by means of the MINI-Plus and/or the SCID-II. Forty-
one applicants did not fulfil the gender identity disorder criteria
and 140 were categorised into the residual gender identity disorder
group. Of our final sample of 305 participants, 182 (59.7%) requested male to female and 123 (40.3%) female to male
reassignment.

Axis I disorders

Almost 70% of the final sample of 305 participants showed one
or more Axis I disorders current and lifetime (Table 2), mostly
affective and anxiety disorders (respectively 60% and 28%).
Prevalence rates were similar in both genders. No association

![Fig. 1 Selection procedure and numbers of participants: early onset (fulfilled both DSM-IV criteria A and B in childhood); late onset (neither DSM-IV criterion); residual group (one criterion). MINI-Plus, MINI International Neuropsychiatric Interview – Plus; SCID-II, Structured Clinical Interview for DSM Axis II Disorders.](image_url)
was found between the presence of a current and lifetime Axis I diagnosis and age at assessment ($P = 0.189$). Patients with a current Axis I diagnosis were younger than those without one ($P = 0.017$). The degree of gender dysphoria was not associated with the presence of an Axis I diagnosis in general, neither was it associated with specific diagnoses such as depressive episode, panic attack, agoraphobia or substance-related problems. In the total cohort there was no difference in the prevalence of Axis I disorders between the early- and late-onset subgroups and this was true for both genders ($P = 0.6$ for the total cohort, $P = 0.4$ for the male to female group).

With regard to the prevalence of Axis I disorders among the four countries, we found a difference between countries among male to female transsexual subgroups, both for current and current and lifetime diagnoses ($P = 0.001$ for current diagnoses, $P = 0.009$ for current and lifetime diagnoses). Male to female transsexual patients in Germany and Norway showed higher prevalence rates compared with those in Belgium and The Netherlands. No difference was found between the female to male transsexual subgroups. Differences between countries were found for the affective cluster ($P = 0.001$ for both current and lifetime and current) and anxiety cluster ($P = 0.029$ for current and lifetime, $P = 0.028$ for current). In Germany, up to 80% of participants with the diagnosis of gender identity disorder showed affective symptoms currently or in the past compared with approximately 50% in the other countries. The Dutch patients had fewer anxiety symptoms currently or in the past compared with the other countries (20% rather than 30–40%).

In almost 30% of the participants suicide risk was identified (meaning they had suicidal ideations and/or plans during the...
prevalence rates. In an analysis of the Epidemiological Catchment Area study, Mustanski showed that childhood gender non-conformity and a history of childhood gender dysphoria were each associated with elevated risk of suicidal behaviour. A longitudinal study in a sample of transgender youth showed that gender dysphoria is independently associated with suicidal ideation and suicide attempts.33 In our study, suicidality was assessed using the MINI-Plus interview, which was also used to measure Axis I disorders; we therefore could not investigate whether there was an association between suicide risk and having an Axis I disorder. No association was found between suicide risk and the presence of personality disorder, which again illustrates that gender identity disorder may be an independent risk factor for suicidality.

Major psychiatric disorders such as bipolar disorder or psychosis were rarely found and did not exceed prevalence in the general population.23–25 Since the presence of psychosis was explicitly defined as an exclusion criterion, there was a severe bias. However, the low number of applicants (16 of 846) excluded for this reason does not suggest that our findings were a severe underestimation of the true prevalence.

Comparison between the prevalence of Axis I disorders in our study and rates in the general population should be interpreted with caution: epidemiological studies in different countries use different criteria and diagnostic methods to identify psychiatric disorders, and the prevalence of disorders may vary by region and demographic group. Further research is needed to assess the true prevalence of psychiatric disorders in transgender populations.

### Axis II disorders

Schizoid, avoidant and borderline personality disorders were most prevalent, in 5%, 4% and 7% of our sample respectively. The overall prevalence rate for personality disorders was 15% (Table 3). No difference was found between the four countries. The prevalence rates of personality disorders were similar in the three countries. The overall rates were lower in the male subgroup (12% had one or more personality disorders) and the female subgroup (10% had one or more personality disorders in 18%). The prevalence rates were similar in all countries. The overall rate for personality disorders was 15% (95% confidence interval [CI] 13.3–16.8). No difference was found between the four countries.

Cluster A disorders were most common (63% of all personality disorders), followed by Cluster B (45%) and Cluster C (41%). No difference was found between the four countries with regard to clusters of personality disorders.

#### Discussion

Overall, we found that Axis I disorders were more common in applicants for treatment of gender identity disorder compared with the general populations of the participating countries.23–26 On closer inspection we found that this difference was mainly due to affective and anxiety disorders, with the gender identity disorder group showing higher rates than the general population. This was the case in all four countries and for both male to female and female to male reassignment groups. Other Axis I clusters were found to be equally prevalent compared with the general population. Although the prevalence rates of affective and anxiety disorders in the general population differed slightly between the four countries, this cannot fully account for the differences we found in our population. A new study would be needed to assess which factors (e.g., patient and clinician characteristics or social differences among the countries) might explain these findings.

The incongruence between gender identity and social life and/or bodily characteristics experienced by individuals diagnosed with gender identity disorder can cause much distress that may lead to affective and anxiety problems and even disorders. Follow-up studies often show a resolution of depressive and anxious symptoms throughout the treatment process.27–29 Furthermore, the phenomenon of ‘minority stress’ can also explain the high prevalence of affective disorders. Social discrimination and stigmatisation may cause a diminished quality of life, particularly with regard to mental health.30–32

The findings with regard to the prevalence of suicide risk confirm results on this topic.31–32 Terada et al reported that the high prevalence of suicidality in their gender identity disorder population was not related to psychiatric comorbidity.32 This suggests that gender identity disorder is an independent risk factor for suicidal behaviour and this could be interpreted as an (inappropriate) coping strategy.31 In a report on suicide and suicide risk in transgender populations, Haas et al emphasised high suicide and suicide attempt rates.32 Besides the high prevalence of depression, anxiety and substance misuse in these populations, factors such as parental rejection and discrimination are linked to elevated risk of suicidal behaviour. A longitudinal study in a sample of lesbian, gay, bisexual and transgender youth by Liu & Mustanski showed that childhood gender non-conformity and victimisation were associated with increased risk of self-harm and suicidal ideation.33 In our study, suicidality was assessed using the MINI-Plus interview, which was also used to measure Axis I disorders; we therefore could not investigate whether there was an association between suicide risk and having an Axis I disorder. No association was found between suicide risk and the presence of personality disorder, which again illustrates that gender identity disorder may be an independent risk factor for suicidality.

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#### Table 3 Axis II disorders assessed with the Structured Clinical Interview for DSM-IV Axis II Personality Disorders

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Belgium</th>
<th>Germany</th>
<th>Norway</th>
<th>All countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more Axis II disorders, n (%)</td>
<td>10 (17)</td>
<td>10 (18)</td>
<td>2 (7)</td>
<td>22 (15)</td>
</tr>
<tr>
<td>Cluster A</td>
<td>4 (7)</td>
<td>3 (6)</td>
<td>2 (7)</td>
<td>9 (6)</td>
</tr>
<tr>
<td>Cluster B</td>
<td>5 (8)</td>
<td>3 (6)</td>
<td>2 (7)</td>
<td>10 (7)</td>
</tr>
<tr>
<td>Cluster C</td>
<td>8 (13)</td>
<td>6 (11)</td>
<td>0 (0)</td>
<td>14 (10)</td>
</tr>
</tbody>
</table>

NS, not significant.
a. Difference between countries.
different instruments and sometimes data on certain clinical categories are simply missing. Still, it is clear that the prevalence of both current and current and lifetime Axis I disorders in our study population is higher than in the general population of all four countries. This difference is mainly due to the high prevalence (up to three times higher compared with the general population) of affective and anxiety disorders. For example, current affective problems occur at rates between 6% (Belgium and The Netherlands) and 11–12% (Germany and Norway) in the general population, whereas in our sample prevalence rates ranged from 13% and 25% (Belgium and The Netherlands) to 40% and 35% (Germany and Norway).23–26 The European Study of the Epidemiology of Mental Disorders (ESEMeD) project, conducted in six European countries (including Belgium, Germany and The Netherlands), found a lifetime prevalence of any mental disorder in 25% of respondents, a much lower percentage than in our cohort (see above). Any mood disorder and any anxiety disorder were found in 14%. Women were twice as likely to have any mental problem compared with men, especially with regard to mood and anxiety disorders which occurred two to three times more frequently in women.34 In our sample Axis I disorders were equally distributed in the male to female and male to male reassignment subgroups, except in Norway where they were more common in the female to male group.

The low degree of psychopathology with regard to personality disorders replicates the findings of some earlier studies,7 but contradicts the high prevalence of such disorders found in similar studies by Hepp et al and Madeddu et al: both studies also used the SCID-II interview and included only people with gender identity disorder,4,36 as we did in our study. A potential explanation for our findings contradicting those of Hepp et al and Madeddu et al could be that some individuals with a personality disorder were more reluctant to participate in our study owing to a lack of confidence in professional caregivers. Our findings accord with prevalence rates of personality disorders in the general population of Germany (10.0%) and Norway (13.4%).37,38 No information on prevalence exists for Belgium; however, in The Netherlands the prevalence is 13.5%.39 Moreover, the distribution in clusters of personality disorders found in this study resembles the distribution found in epidemiological studies in Germany, Norway and The Netherlands.37–39 Statistics on the Axis II data should be interpreted with caution, owing to the low numbers in most disorder categories.

In contrast to some reports (and the general impression among clinicians) that individuals with late-onset gender identity disorder are more psychiatrically affected,15 no difference concerning psychiatric comorbidity, whether Axis I and Axis II, was found between individuals with early- v. late-onset disorder. The only exception was among the female to male reassignment group, in which those with late-onset disorder showed more Axis II problems than those with early-onset disorder, but numbers were very small (only four individuals in the late-onset group) and this finding needs to be replicated in a larger study.

In conclusion, our findings show that individuals with gender identity disorder have more psychiatric problems than the general population: mostly these are affective and anxiety problems. Although more decisive conclusions cannot be drawn owing to the cross-sectional design of our study, psychopathological symptoms seem to be closely related to the individual’s long-standing and strongly felt identification with the other gender. Further research should focus on long-term follow-up studies using standardised diagnostic and therapeutic protocols in order to determine whether the Axis I diagnosis rate decreases with treatment and whether such a decrease manifests in any particular subcategory of patient. This might lead to a better understanding of the nature of gender identity disorder and of the psychiatric symptoms experienced in connection with this disorder.

Acknowledgements

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References

On Nikolai Gogol’s Diary of a Madman

Rachel Upthegrove

It is not uncommon for us psychiatrists to spend time questioning our diagnostic categories, constructs and presumptions. While reading draft DSM-5 and debates around ICD-11, one might be forgiven for thinking we are very far from achieving diagnostic criteria of mental illness that are anything near accurate. In times of doubt, I advise a dip into Gogol. Diary of a Madman reminds us that, although we may struggle to capture the entirety of mental illness or draw the nuanced boundaries, we can at least be clear on what constitutes psychosis. On reading this text I am reminded then that the recognition of psychopathology is far easier than definition, and has for centuries.

Nikolai Gogol was born in 1809 in the Ukraine and spent his early adulthood as clerk in the burgeoning government ministries. His own mental illness, with features of religious mania and depressive stupor, began after the composition of Diary and led to his untimely death in 1852. Thus, it is his own observation (or indeed perhaps untreated psychosis) on which Gogol draws to allow such accuracy of portrayal. We are treated not only to auditory verbal hallucinations in the form of barking dogs, veridical in nature, but delusional mood and primary delusion: ‘I couldn’t get that Spanish business out of my head. How could a woman inherit the throne?’ followed by ‘Today is a day of triumph, There is a king of Spain. He has been found at last. That king is me. I only discovered this today. Frankly, it all came to me in a flash. I don’t understand why, but before this revelation everything was enveloped in a mist . . . ’

The portrayal of the unshakeable nature of delusions, evidence gathered to reinforce belief and evidence disregarded that challenges, is striking and maps neatly on to current cognitive models of delusional formation. On transport to the asylum our protagonist retorts: ‘I think I’m safe in hazarding a guess that I’ve fallen into the hands of the Inquisition, and the person I thought was a minister of state was really the Grand Inquisitor’.

At 20 short pages this story is readily accessible, even though written in a different language, set in a culture far from our own and nearly two centuries old. I use it to teach students. I ask them to identify symptoms, discuss how the diary format enables us to have direct access to subjective experience and reflect on treatment of mental illness in the past. This is much more illustrative than any textbook. Above all, I read it to reaffirm that although we have some way to go in psychiatry we are, after all, on the right track.
### A. CRITERION
A strong and persistent cross-gender indentification (not merely a desire for any perceived cultural advantages of being the other sex)

<table>
<thead>
<tr>
<th>Unterstützung</th>
<th>Very strong</th>
<th>Moderately</th>
<th>Mildly</th>
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<tbody>
<tr>
<td>How strong</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>How persistent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Since when</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How long (duration)</td>
<td>&gt;5 years</td>
<td>Between 1-5 years</td>
<td>&lt; 1 year</td>
</tr>
</tbody>
</table>

Frequent passing as the other sex

<table>
<thead>
<tr>
<th>How often</th>
<th>Regularly (once a week or more)</th>
<th>Monthly</th>
<th>Occasionally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Since when</td>
<td>Childhood</td>
<td>Adolescence</td>
<td>Adulthood</td>
</tr>
<tr>
<td>How long (duration)</td>
<td>&gt;5 years</td>
<td>Between 1-5 years</td>
<td>&lt; 1 year</td>
</tr>
</tbody>
</table>

Desire to live or be treated as the other sex

<table>
<thead>
<tr>
<th>How strong</th>
<th>Very strong</th>
<th>Moderately</th>
<th>Mildly</th>
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<tbody>
<tr>
<td>How persistent</td>
<td>Very persistent</td>
<td>Somewhat persistent</td>
<td>Not persistent</td>
</tr>
<tr>
<td>Since when</td>
<td>Childhood</td>
<td>Adolescence</td>
<td>Adulthood</td>
</tr>
<tr>
<td>How long (duration)</td>
<td>&gt;5 years</td>
<td>Between 1-5 years</td>
<td>&lt; 1 year</td>
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</table>

Conviction that he or she has the typical feelings and reactions of the other sex

<table>
<thead>
<tr>
<th>How strong</th>
<th>Very strong</th>
<th>Moderately</th>
<th>Mildly</th>
</tr>
</thead>
<tbody>
<tr>
<td>How persistent</td>
<td>Very persistent</td>
<td>Somewhat persistent</td>
<td>Not persistent</td>
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<tr>
<td>Since when</td>
<td>Childhood</td>
<td>Adolescence</td>
<td>Adulthood</td>
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<tr>
<td>How long (duration)</td>
<td>&gt;5 years</td>
<td>Between 1-5 years</td>
<td>&lt; 1 year</td>
</tr>
</tbody>
</table>

Patients fulfills Criterion A □ Yes □ No □ Due to comorbidity
B. CRITERION
Persistent discomfort with his or her sex or sense of inappropriateness in the gender role of that sex

<table>
<thead>
<tr>
<th>Preoccupation with getting rid of sex characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>How strong</td>
</tr>
<tr>
<td>How persistent</td>
</tr>
<tr>
<td>Since when</td>
</tr>
<tr>
<td>How long (duration)</td>
</tr>
<tr>
<td>Complete/incomplete wish</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Belief to be born the wrong sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>How strong</td>
</tr>
<tr>
<td>Since when</td>
</tr>
<tr>
<td>How long (duration)</td>
</tr>
</tbody>
</table>

Patient fulfills Criterion B                           □ Yes    □ No    □ Due to comorbidity
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