

Childhood Maltreatment Linked with a Deterioration of Psychosocial Outcomes in Adult Life for Southern Brazilian Transgender Women

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Abstract A history of childhood maltreatment (HCM) has been associated with detrimental psychiatric outcomes. This is particularly true for transgender, for whom there is initial evidence that HCM may be associated with psychiatric morbidity. Our study aimed to further characterize the relationship between HCM and the development of mental disorder in adult life, based on a sample of Brazilian transgender women. Cross-sectional data were collected from a consecutive sample of 289 transgender women who attended the Hospital Clínicas clinic for gender dysphoria, in Porto Alegre, between 1998 and 2014. Our results

demonstrated a greater risk of deteriorating mental health amongst participants who had experienced HCM. Given the disproportionately high rate of HCM in transgender persons, we advocate for greater assistance for transgender persons.

Keywords Gender identity · Sex work · Minority stress · Southern Brazil · Childhood maltreatment

Anna Martha Vaitses Fontanari and Diego Luiz Rovaris have contributed equally to the present study.

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Introduction

Despite the high degree of violence and discrimination transgender individuals face, there continues to be limited research that specifically explore the relationship between a history of childhood maltreatment (HCM) and psychological outcomes in that population [1, 2]. Transgender individuals are defined as those whose gender identity does not align with the gender they were assigned at birth [3]. Those transgender persons who experience suffering from a persistent incongruence between one's experienced gender and one's assigned gender were diagnosed with gender identity disorder (GID), based on DSM-IV criteria [4]. However, recently GID was seen to pathologize trans identity, so was replaced with Gender Dysphoria in the DSM-5 [5]. Conversely, cisgender refers to people whose assigned sex at birth reflects the gender that they know themselves to be [6, 7]. This term was strategically deployed to denaturalize cisgender identity in the face of assumption that trans identity is merely a deviation from the norm, rather than part of natural variation [7]. It follows that the term cissexism denotes the explicit or implicit privileging of cisgender identity [6, 7]. As a result of the cissexist discrimination of most societies, the presence of psychological disorders tends to covary with transgender identity [3, 8]. Transgender individuals often experience minority stress, as social infrastructures are designed to accommodate cisgender norms; directly or indirectly excluding them [8].

Burnes et al. performed a semi-structured interview with 14 transgender individuals concerning traumatic life experiences [9]. They found four distinct themes related to traumatic events described by their volunteers: experiences of trauma within the family (including verbal harassment and coercion to deny transgender identity), intrapersonal violence (such as self-harm behaviors, substance use, disordered eating, and unsafe sex), interpersonal violence (comprising verbal abuse and fear for their physical safety) and experiences of trauma in public restrooms (fear of possible violence and abuse) [9]. Stressors such as these can often contribute to the development of mental health disorder [10]. In line with much of the current literature, worldwide [11–18], a previous publication from our group [18] reported a high prevalence of psychiatric diagnosis, including psychoactive drug use, suicide attempts, major depressive disorder, psychoses, social phobias, and obsessive-compulsive behavior, in a cohort of transgender individuals recruited from an outpatient clinic in Brazil.

In the general population, HCM has also been widely associated with a higher rate of psychiatric disorders [19–28]. Due to the detrimental effects of social inequality and infrastructural bias, these risks are even greater for minorities that already face discrimination. Stigma, prejudice, and discrimination create a hostile and stressful social

environment that causes mental health problems [10]. Transgender persons are often exposed to discrimination [29], and there is evidence that the risk and effect of childhood abuse are subsequently elevated for them [30]. Many transgender women lack employment and live below the poverty line [31–34]. In this context of explicit and implicit violence, some transgender women might do survival sex work [35, 36]. Survival sex work is a useful term that has been introduced by the sex-worker-run Prostitution Alternatives Counselling and Education Society to distinguish sex exchanged for money or other commodities as a means of basic subsistence [37, 38]. Engagement with survival sex work brings a particularly elevated risk for HIV infection [36, 39], substance misuse [33, 34, 40], depression [41, 42] and suicidality [41]. In Brazil, transgender studies focusing on sex work predominantly involves *travestis*. *Travesti* is a Latin American term that is generally understood to refer people who seek to perform feminine roles and appearances without necessarily altering all of their physical characteristics, such as their genitalia [43]. *Travesti* status is associated with low socio-economic status, psychological adversity, stigma, social exclusion comprising survival sex work [44], however, the nature of this status is contested and often recursive, such that the distinction between trans and travesti labels is a matter of the individual's social standing. Whilst these subtle distinctions are not central to this research, they will be an important consideration in the future implementation of our results.

At present, two studies specifically examine the associations between HCM and psychological outcomes in transgender individuals. In a German study, published in 2003, Kersting et al. sought to explore differences in dissociative symptoms amongst 41 transgender individuals, aged 19–61 years, and 115 cisgender psychiatric in-patients. Even though the focus was not on HCM, their use of the Childhood Trauma Questionnaire (CTQ) allowed them to investigate the significantly higher prevalence of childhood emotional maltreatment in the transgender group [2]. The results suggested that an emotionally neglectful and abusive environment is likely to augment dysphoria in individuals who already struggle with gender incongruences. Alternatively, a supportive environment may serve as a buffer against the psychological impacts that are associated with gender dysphoria. However, Kersting et al. recommended further research was required to more fully understand the effects of traumatic childhood experiences in transgender people's development.

The other article exploring the impact of HCM on transgender development was performed at an Italian center [1]. Bandini et al. used face-to-face interviews, the Body Uneasiness Test [45], and the Symptom Checklist-90 Revised [46] to evaluate 109 Italian transgender women on how HCM affected their body image, in addition to a

series of clinical variables [1]. The mean age of the participants was 36 ± 10 years. One quarter of their sample reported childhood maltreatment, which was associated with higher levels of body image dissatisfaction, worse psychosocial adjustment during childhood, and worse lifetime mental health. Based on these findings, the authors hypothesized that HCM might have a causal role on the pathogenesis of gender dysphoria, which is to say that children in abusive environments are less likely to find support if they defy gender norms, in line with the prior study. However, they also cite that children with gender non-conforming behavior are more likely to be maltreated [47]. Rather than imply that GD plays a causal role in HCM—quite plainly, the blame for a child experiencing gender-based abuse lies solely with the transphobic abuser—in transphobic contexts, gender-based violence is elicited by the presence of gender expression different from the expectation.

Schneeberger et al. conducted a systematic review of 73 articles that addressed various forms of stressful childhood experiences in sexual minority populations [48]. The authors explicitly noted that 63 of the studies were based in the USA, and advised that future studies should target sexual and gender minority populations in a more diverse array of nations. In Brazil, violence against transgender people is constant and presents itself in numerous ways, from murder and abuse to individual prejudice [49]. According to the Trans Murder Monitoring Project [50], Brazil has the highest (absolute) number of homicides of transgender people among surveyed countries. In 2012, official data concerning violence against Brazilian lesbian, gay, bisexual and transgender (LGBT) populations were released [51]. This report made clear that transgender people were the most frequent victims of hate crimes, including severe bodily injury and homicide [51]—even more so than their gay, lesbian, and bisexual populations. In response to the pervasive effects of discrimination and exclusion on the health-disease process, such as unequal access to health services [52], the Federal government implemented the National Policy for Integral Health of LGBT populations in 2011 [52]. Despite the increasing (albeit long overdue) development of research in this area, many of the dynamics around transgender identity, GD, and HCM remain understudied. We expect that this study will contribute to a more extensive understanding of transgender experiences, within Brazil and globally.

It seems evident that HCM plays a significant role in the development of psychopathology in adult life. Transgender women present a particularly vulnerable population, as consequence of their increased risk of HCM and minority stress, and deserve priority in this area of research. Consequently, the aim of this study is to further characterize the role of HCM as a contributing factor to psychosocial outcomes in Brazilian transgender women. As well as

identifying HCM and mental health statuses amongst our cohort of transgender women, we included measures of variables that may contribute or provide resources against mental disorder, such as profession, education, sexual history, and age of identity development. The goal of this study was that these findings might illuminate strategies to assist transgender individuals that have suffered childhood maltreatment, and provide direction for further research to this end.

Method

Sample

The Gender Dysphoria (GD) outpatient clinic at Hospital de Clínicas de Porto Alegre (HCPA)—a university hospital situated in Southern Brazil—was the first of its kind in Brazil, and one of the main Latin American centers for GD studies. Established in 1998, it has focused on conducting multidisciplinary outpatient treatments, providing psychological, hormonal, and surgical options to individuals diagnosed with GD. The GD Clinic at HCPA is the only specialized care center for GD in Southern Brazil.

Our sample was comprised of 289 transgender women who sought gender affirmation surgery (GAS) through the service. They were recruited to the study between 1998 and 2014. There are some missing values for a number of the variables, due to a protocol change in 2008; however, all individuals were equally evaluated on GID status (gender identity disorder according to the DSM-IV criteria), HCM, and other key variables. Since most of our sample had already been collected prior to the publication of the DSM-5, in 2013, we chose to retain GID as our descriptor. The DSM-5 takes into account dysphoria, and not identity. Therefore, the new criteria are more flexible than the DSM-IV: it included persons diagnosed with disorders of sexual development (DSDs) and has decreased the time criteria. Limitation of these classifications in the participant' selection is discussed afterwards. Participants fulfilled criteria for GID, as diagnosed by a specialized physician. Following diagnosis, patients were invited to join the research project; given instructions on the procedure and expectations of the project; and provided informed consent prior to participating in the research. The Ethical Committee of HCPA approved this study.

Procedure

The Mini International Neuropsychiatric Interview—Brazilian Version, 5.0.0 (MINI) was used to assess participants' current psychiatric comorbidities. The MINI is a short structured diagnostic interview, developed by psychiatrists and

clinicians in the United States of America and Europe to screen psychiatric disorders [53, 54]. The MINI has been validated in Brazil, with adequate validity and reliability, and is recognized as a helpful clinical tool [55, 56]. Following diagnosis, demographic, psychosocial, and family history variables were evaluated through a structured interview. The lifetime presence or absence of HCM was assessed based on answers to the following three questions, regarding molestation, rape, or negligence that occurred during their childhood, respectively: “Has someone ever made you see or do something sexual—like touching you in a sexual way or on your private parts, or making you see or touch their private parts, or making you watch them touch their own private parts?”; “Have you been forced to do sex acts?”; and “Have you ever had a time in your life when you did not have the right care—like not having enough to eat or drink, being homeless, being left alone when you were too young to care for yourself, or being left with someone using drugs? Or have you ever been left in charge of your younger brothers or sisters for long periods of time, sometimes for several days?” These questions were similar to specific questions related to sexual abuse and negligence included in the Traumatic Events Screening Inventory—Self Report, Revised [57, 58]. The interviews were conducted by a psychologist or by a psychiatrist. At the time of the interviews, the interviewers had already established a good rapport with the participants, and the interviewers adapted the questions to ensure that participants understood what was intended.

Statistical Analysis

Mann–Whitney *U* tests were conducted to compare continuous variables between HCM groups, while Fisher’s Exact Tests were utilized to compare dichotomous variables. Means or proportions with 95% confidence intervals (*CI*) were conducted. Two-step regression analyses were applied to evaluate the relationship of each variable studied with HCM. This model was elaborated to control potential Chi square confounds. It should be made clear that the aim of this study was not to establish causality. In the first step, we included all variables associated with HCM, with *p* values <0.20, in a multiple logistic model. This approach was adopted to avoid a saturated first model. In the second step, we used a backward stepwise procedure to obtain the final model.

Results

Demographics

The general characteristics of the sample are summarized in Tables 1 and 2. The average age at referral was 28.9

years old, with a range from 15 to 54. Participants had an average of 10 years of formal education.

Clinical Characteristics

The average age when participants reported feeling uncomfortable with their assigned gender was 8.2 years old (*CI*=7.81–8.65). Participants reported playing traditionally-assigned female games, such as playing with dolls, began at 6.1 years old (*CI*=5.55–6.78). On average, participants started to dress up in traditionally-assigned feminine clothes, in a playful way, at 7.8 years old (*CI*=7.12–8.44), and in an identity-asserting manner at 17.4 years old (*CI*=16.72–18.13)—meaning that the participants in our sample assumed their identity, openly as transgender women, on average at the age of 17.4 years old.

Psychiatric History

19.2% of transgender women reported receiving a psychiatric diagnosis at some point in their life. 3.2% of the entire sample had required psychiatric hospitalization. At least one positive item in the MINI was present in 40.6% of the sample. The most common psychopathologies were current and lifetime major depressive episodes (14.5%) and current risk of suicide (20.3%). In addition, 18.0% had attempted suicide at least once in their lifetime.

Table 1 Sociodemographic characteristics

Variables	N*	Mean or % (95% <i>CI</i>)
Age (years)	289	28.90 (27.93–29.87)
Schooling (years)	130	10.79 (10.28–11.31)
Children (yes)	283	1.4 (0.4–3.6)
Informal or formal employment (yes)	288	93.1 (89.4–95.7)
Area of professional performance		
Aesthetics (ex. hairdresser, manicure, etc.)	118	25.42 (17.86–34.26)
General services (ex. domestic, cook, etc.)		50.00 (40.66–59.34)
Health (nursing technician, etc.)		5.93 (2.42–11.84)
Administration (manager, supervisor, etc.)		15.25 (9.30–23.03)
Other		3.39 (0.93–8.45)

*N column indicates the number of individuals that answered the respective variable, listed in the Variable column. There is substantial variation in the number of missing values according to each variable due to a protocol change in 2008

Table 2 Clinical characteristics

Variables	N*	Mean or % (95% CI)
Childhood trauma	284	25.00 (20.07–30.46)
Clinical history		
Hormone use (yes)	286	89.51 (85.36–92.81)
Age of onset of hormone use (years)	251	20.45 (19.63–21.27)
GAS (yes)	269	32.34 (26.79–38.29)
Appearance (feminine)	131	87.79 (80.92–92.85)
Psychiatric history		
Self-report of psychiatric illness (yes)	141	19.15 (13.01–26.62)
Self-report of psychiatric hospitalizations (yes)	285	3.16 (14.50–5.91)
Smoking (yes)	100	36.00 (26.64–46.21)
Suicide attempt (yes)	283	18.02 (13.72–23.00)
MINI International Neuropsychiatric Interview (positive)	133	40.60 (32.18–49.46)
Major depressive disorder (yes)	131	14.50 (8.96–21.72)
Major depressive disorder with melancholic features (yes)	132	6.06 (2.65–11.59)
Dysthymia (yes)	132	5.30 (2.16–10.62)
Risk of suicide (yes)	133	20.30 (13.83–28.14)
Manic or hypomanic episode (yes)	132	8.33 (4.23–14.42)
Panic disorder (yes)	133	5.26 (2.14–10.54)
Agoraphobia (yes)	132	6.82 (3.16–12.55)
Social phobia (yes)	132	3.03 (0.83–7.58)
Obsessive-compulsive disorder (yes)	132	0.76 (0.02–4.15)
Posttraumatic stress disorder (yes)	132	1.52 (0.18–5.37)
Alcohol dependence and abuse (yes)	132	2.27 (0.47–6.50)
Drug dependence and abuse (yes)	132	3.03 (0.83–7.58)
Psychotic disorder (yes)	130	3.85 (1.26–8.75)
Eating disorder (yes)	131	0.76 (0.02–4.18)
Generalized anxiety disorder (yes)	130	6.92 (3.21–12.74)
Sexual behavior		
Sexual orientation (prefer sexual intercourse with female)	270	4.44 (2.32–7.63)
Age of first sexual intercourse (years)	267	15.30 (14.81–15.79)
Sexual preference (passive)	277	99.28 (97.42–99.91)
History of gender variance in the family (yes)	243	7.41 (4.45–11.45)
History of transvestism (yes)	233	5.15 (2.69–8.82)
Prostitution (yes)	255	34.51 (28.69–40.70)
Transgenderism		
Age of cross-dressing (years)		
Ludic	136	7.78 (7.12–8.44)
Definitive	269	17.43 (16.72–18.13)
Onset of feeling inadequacy (years)	278	8.23 (7.81–8.65)
Age of exchanged games (years)	230	6.17 (5.55–6.78)
Sexually transmitted diseases**		
Any STD	285	31.23 (25.89–36.96)
HPV	140	5.71 (2.50–10.95)
Syphilis	268	11.19 (7.68–15.59)
HIV	266	20.68 (15.97–26.05)

GAS gender affirmation surgery, STD sexually transmitted disease

*N column indicates the number of individuals that answered the respective variable, listed in the Variable column. There is substantial variation in the number of missing values according to each variable due to a protocol change in 2008

**Including syphilis, HIV, HPV and Hepatitis C

Childhood Maltreatment Associations

A quarter ($CI=20.07\text{--}30.46$) of our sample has been exposed to childhood maltreatment. Transgender women who reported HCM tended to exhibit their gender non-conforming behavior at an older age ($p=0.009$). They also tended to assert their identity through feminine dress at a later stage in life ($p=0.041$). Transgender women that had experienced HCM were significantly more often involved in sex work ($p<0.001$). HCM participants were also significantly more likely to contract HIV ($p=0.006$). HCM status was also associated with a higher prevalence of major depressive disorder ($p=0.025$), alcohol dependence and abuse ($p=0.027$), and suicide attempt risk ($p=0.014$). Table 3 compiles the associations between HCM and socio-demographic and clinical variables listed in Table 1.

After the backward stepwise multiple logistic regression, only past and present sex work ($p<0.001$), and having at least one associated psychopathology ($p=0.005$) remained significantly associated with HCM. Odds ratios are reported in Table 4 as a proxy for effect size.

Discussion

This study was designed to explore the relationship between childhood maltreatment and psychosocial outcomes in a cohort of southern Brazilian adult transgender women who sought medical care at the Gender Dysphoria Clinic, at Hospital Clínicas, Porto Alegre. Our results are contextualized by Schneeberger et al.'s systematic review of studies that looked at stressful childhood experiences in sexual minority populations [48]. The authors investigated the prevalence of three forms of childhood maltreatment, comparing probability and non-probability sampling. The overall rates of childhood sexual, physical, and emotional abuse were 33.5/20.7%, 23.5/28.7%, and 48.5/47.5%, respectively. In our study of transgender women in south Brazil, 25% of participants reported some degree of childhood maltreatment. This mimics levels found by Bandini et al., however, given the results of the Trans Murder Monitoring Project, which revealed that Brazil had the highest rate of trans-targeted homicides, worldwide [50], and Brazil's high rate of homicide in the general population [59], finding lower rates of childhood maltreatment was surprising, to say the least.

On the one hand, it is possible that our method for assessing HCM was ineffective at eliciting accurate responses from participants. However, as interviewers would have been able to clarify any misunderstanding, we believe this is unlikely. Alternately, these are incredibly sensitive questions that are asked reasonably directly,

which may have led to participants feeling uncomfortable answering honestly. Thirdly, it is possible that the general experiences of transgender people throughout Brazil are so fraught with micro-aggressions or less explicit forms of abuse that our questions failed to pick up less extreme forms of childhood abuse.

Carballo-Diéguez et al. have conducted research into the prevalence of childhood sexual experiences with older partners among transgender Brazilians [60]. In their sample, 32% of participants reported such experiences, with a mean age of participants' first encounter at nine, with partners' aged, on average, 19 years old. However, only 29% of those who has these experiences considered them to be a form of abuse. The first two questions in this study, assessing molestation and rape, may have been ineffective if participants did not consider their childhood sexual experiences to be 'forced', even though they were not at an age where they would be able to give informed consent.

Transwomen, Childhood Maltreatment, and Mental Health

Independent of HCM, 40.60% of the transgender women in our study presented at least one mental health disorder according to MINI; the most prevalent of which was major depressive disorder. However, 58.9% ($p<0.05$) of participants who experienced childhood maltreatment demonstrated mental health disorder; almost double non-HCM participants (32.2%). HCM patients were also almost three times more likely to experience major depressive disorder (25.6/9.1%, $p<0.05$) or suicide risk (33.3/13.3%, $p<0.05$). Furthermore, HCM participants were more likely to register multiple mental health disorders on the MINI measure. This reinforces extant literature that demonstrates how transgender and queer youths tend to have a greater risk of health and psychological problems than their heterosexual, cisgender (heteronormative) counterparts, largely attributed to their exposure to minority stress [10].

There have been studies that suggest transgender people are at no greater risk of mental health disorders, however, we believe that their results display Type II errors (i.e. false negatives) or that they are biased by their methodologies. For example, Haraldsen et al. found a relatively low level of self-reported psychopathology among transgender persons in a study of transgender women selected for GAS, individuals with personality disorders, and a control group [61]. This is perhaps unsurprising, as the selection criteria for GAS exclude severely ill transgender individuals. As our sample did not have such strict requirements, it is likely to be a more accurate depiction of transgender women in Brazil, and the significant difference between trans women and the control group a more representative illustration of their realities. This supports existing evidence of the greater risk

Table 3 Psychiatric and psychosocial variables according to HCM

Psychiatric and psychosocial variables	Childhood maltreatment		N*	Statistics	p value
	No	Yes			
	% (CI 95%)	% (CI 95%)			
Hormone use (yes)	88.26 (83.16–92.26)	92.96 (84.33–97.67)	213/71	1.242	0.373
GAS (yes)	36.08 (29.33–43.27)	22.86 (13.67–34.45)	194/70	4.096	0.053
History of gender variance in the family (yes)	6.82 (3.57–11.61)	8.96 (3.36–18.48)	176/67	0.323	0.588
History of transvestism in the family (yes)	4.82 (2.10–9.27)	6.06 (1.68–14.80)	166/66	0.148	0.745
Sexual orientation (female)	4.04 (1.76–7.81)	5.63 (1.56–13.80)	198/71	0.311	0.738
Sex work (yes)	24.86 (18.82–31.74)	60.29 (47.70–71.97)	185/68	27.663	<0.001
Smoking (yes)	35.71 (25.55–46.92)	46.15 (19.22–74.87)	61/36	0.526	0.543
Suicide attempt (yes)	17.14 (12.30–22.93)	21.13 (12.33–32.44)	210/71	0.567	0.478
HIV (yes)	16.58 (11.63–22.59)	32.86 (22.09–45.12)	193/70	8.229	0.006
Any STDs (yes)	27.96 (22.02–34.54)	40.85 (29.32–53.16)	211/71	4.107	0.054
MINI (positive)	32.22 (22.75–42.90)	58.97 (42.10–74.43)	90/39	8.093	0.006
Major depressive disorder (yes)	9.09 (4.01–17.13)	25.64 (13.04–42.13)	88/39	6.085	0.025
Dysthymia (yes)	4.49 (1.24–11.11)	7.69 (1.62–20.87)	89/39	2.487	0.199
Risk of suicide (yes)	13.33 (7.08–22.13)	33.33 (19.09–50.22)	90/39	6.966	0.014
Manic or hypomanic episode (yes)	5.62 (1.85–12.63)	15.38 (5.86–30.53)	89/39	3.293	0.089
Panic disorder (yes)	4.44 (1.22–10.99)	7.69 (1.62–20.87)	90/39	0.559	0.674
Agoraphobia (yes)	5.62 (1.85–12.63)	10.26 (2.87–24.22)	89/39	0.893	0.454
Social phobia (yes)	2.25 (0.27–7.88)	5.13 (0.63–17.32)	89/39	0.743	0.585
Obsessive-compulsive disorder (yes)	1.12 (0.03–6.10)	0.00 (0.00–9.03)	89/39	0.442	1.000
Posttraumatic stress disorder (yes)	1.12 (0.03–6.10)	2.56 (0.06–13.48)	89/39	0.366	1.000
Alcohol dependence and abuse (yes)	0.00 (0.00–4.06)	7.69 (1.62–20.87)	89/39	7.010	0.027
Drug dependence and abuse (yes)	3.37 (0.70–9.54)	2.56 (0.06–13.48)	89/39	0.058	1.000
Psychotic disorder (yes)	4.60 (1.27–11.36)	2.56 (0.06–13.48)	87/39	0.292	0.678
Eating disorder (yes)	1.14 (0.03–6.17)	0.00 (0.00–9.03)	88/39	0.447	1.000
Generalized anxiety disorder (yes)	5.68 (1.87–12.76)	10.53 (2.94–24.80)	88/38	0.939	0.451
	Mean (CI 95%)	Mean (CI 95%)			
Schooling	10.88 (10.20–11.55)	10.66(9.84–11.48)	80/50	–0.080	0.937
Age of first sexual intercourse	15.30 (14.75–15.86)	15.30 (14.24–16.36)	196/70	–0.101	0.920
Age of onset of hormone use	20.13 (19.22–21.03)	21.00 (19.28–22.72)	184/65	–1.055	0.292
Age of cross-dressing					
Ludic	7.90 (6.94–8.87)	7.59 (6.78–8.41)	82/54	–0.479	0.634
Definitive	17.15 (16.32–17.98)	18.34 (16.98–19.70)	196/71	–2.044	0.041
Onset of feeling inadequacy	8.09 (7.65–8.53)	8.63 (7.57–9.70)	205/71	–0.394	0.694
Age of exchanged games	5.86 (5.12–6.59)	6.86 (5.68–8.04)	163/65	–2.604	0.009

N column indicates the number of individuals that answered the respective variable, listed in the Variable column. There is substantial variation in the number of missing values according to each variable due to a protocol change in 2008

MINI the mini-international neuropsychiatric interview, GAS gender affirmation surgery

Bold values indicate statistical significance ($p \leq 0.05$)

*Childhood maltreatment no/yes

of mental illness in transgender populations in Brazil [18], largely attributed to their experience of violence and discrimination. Bockting et al. suggest that minority group membership makes individuals vulnerable to prejudice and discrimination, which in turn induces cumulative stress response, and may lead to adverse health outcomes [62]. It

follows that mental health disparities in our study largely reflect the prevalence of HCM, which in turn marks the severity of vulnerabilities faced by transgender individuals living in social environments that often victimize and marginalize them [63].

Table 4 Logistic regression of variables associated with CHM

	B	SE	Wald	df	OR (CI 95%)	p value
Sex work						
No	0	–			1	–
Yes	1.63	0.43	14.24	1	5.09 (2.19–11.84)	<0.001
MINI (positive)						
No	0	–			1	–
Yes	1.20	0.43	7.78	1	3.32 (1.43–7.73)	0.005

MINI the mini-international neuropsychiatric interview, *SE* standard error, *CI* confidence interval

Gender reaffirming surgery, suicide attempt, human immunodeficiency virus, sexually transmitted diseases, major depressive disorder, dysthymia, manic or hypomanic episode, age of cross-dressing definitive and age of exchanged games also entered in the initial multiple logistic regression model but did not remain significant in the final model

Transwomen, Childhood Maltreatment, and Sex Work

The prevalence of engaging in sex work was significantly greater amongst participants who had experienced childhood maltreatment. The choice to engage in sex work must be understood in the context of a Brazilian nation where sex work is delegalized, but problematized by legislation that prevents institutional safeguards [64]; unregulated in its existence; and without support mechanisms or educational resources to ensure the safety of individuals who engage in the practice. As a result, sex workers are often subject to violence [65], exploitation [66], HIV contraction [67–69], drug or alcohol abuse [70], and even homicide [71]. Whilst the authors believe that the right to practice sex work should be guaranteed, we recognize that, in some Brazilian contexts, survival sex work could prevail and be a product of choicelessness and lack of support in others aspects of transgender women lives [72]. Besides the transphobia of many employers, childhood maltreatment could increase the likelihood of mental disorder, potentially impeding on their ability to work in other fields, due to flexibility requirements and other factors. Transgender persons are significantly more likely to be affected by homelessness [73, 74], which may necessitate various survival strategies, including survival sex work. More generally, a study by Factor and Rothblum demonstrated that transgender persons tended to encounter significantly less support and significantly more stressors than their cisgender siblings, reflecting the minority stress status consistently found in vulnerable population [10, 75]. Consequently, despite the dangers of sex work, we can understand why it may be seen as the best choice in these circumstances. Given the wide array of confounding factors, we do not believe that childhood maltreatment is directly responsible for the rates of survival sex work, but instead reflects an aspect of their minority stress. A better understanding of the motivations of these women's engagement with survival sex work could

be gained from further qualitative enquiry. What we do know is that the legalization of sex work; the safeguarding of sex worker rights; and the institutionalization of support mechanisms for sex workers can and have improved the lives of people in this industry [66].

Additional Factors

A number of variables did not remain significant after the second step of the logistic regression; however, those that were significant after the first step indicate the added vulnerabilities for those who have been subject to child abuse. These HCM participants had higher rates of sexually transmitted diseases, including significantly greater HIV rates. Alcohol dependence or abuse was practically non-existent in non-HCM participants, while 7.7% of HCM participants struggled with these conditions. Finally, HCM participants were significantly more likely to display non-cisgender-conforming behavior at a later stage in life. Further research is needed to ascertain whether this may be attributed to HCM participants fearing behavior that may lead to further abuse (assuming their abuse occurred prior to these events), or whether some other factor is involved.

Limitations

Sociodemographic and clinical characteristics were assessed using a structured interview in which closed questions were employed. Issues involving sensitive topics, such as participants' sex lives would be more reliably assessed using tailored scales or open-answer questions. Secondly, whilst we asked about sexual abuse, sexual violence, and negligence, the measurement of maltreatment was based on subjective experience and interpretation of the event, which makes it more difficult to be certain of exactly what was being measured. Furthermore, the nature of abuse may play a primary role in the severity of psychopathology in adult

life [24]. For example, Ruggiero et al. and Steel et al. demonstrated that longer durations of abuse were associated with higher levels of PTSD-related symptomatology and psychological distress, respectively [76, 77]. Future studies would benefit from utilizing more accurate instruments to measure HCM, such as the Brazilian version of the Childhood Trauma Questionnaire [78]. It is noteworthy that our study comprises a sample of transgender women which desired and were able to access medical assistance, seeking mainly surgical procedures. Since transgenderism involves a wide array of transgender identities, our sample does not represent all those populations. In addition, DSM-IV criteria selected transgender people more narrowly by excluding participants with DSDs. Considering that DSDs are extremely rare, using DSM-IV criteria, instead of DSM 5 criteria, most likely have not affect our sample; however, participant 'selection may have been biased. Finally, the cross-sectional nature of our study does not allow us to establish causal relationships between HCM and psychosocial outcomes among our sample. A longitudinal study of non-heteronormative children and youth, including a sample of children who have been removed from abusive environments, would be ideal for deciphering the roots of psychological disorders resulting from childhood maltreatment.

Conclusion

Our results demonstrated there was a greater risk of deteriorating mental health amongst participants who had experienced HCM. Given the disproportionately high rate of HCM in transgender persons—amidst a system of stressors that put transgender individuals at greater risk of suicide—we advocate for greater assistance for transgender persons. Further consultation is required to identify how survivors may be best supported; how to identify and prevent the source of these abuses or stop the violence where it already exists; and how to create more accepting environments that allow transgender individuals to flourish.

Compliance with Ethical Standards

Conflict of interest Anna Martha Vaites Fontanari, Diego Luiz Rovaris, Angelo Brandelli Costa, Andrew Pasley, Renata Basso Cupertino, Bianca Machado Borba Soll, Karine Schwarz, Dhiordan Cardoso da Silva, André Oliveira Borba, Andressa Mueller, Claiton Henrique Dotto Bau and Maria Inês Rodrigues Lobato declares that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964

Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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