

Association between Gender Affirmation, Parental Attachment, and Suicide-Related Behaviors in Individuals with Gender Dysphoria

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Objective: To study the prevalence of suicide-related behaviors in individuals with gender dysphoria and to study the associations among gender affirmation, parental attachment, and suicide-related behaviors.

Materials and Methods: The present study was a cross-sectional survey study involved individuals with gender dysphoria attending the Gender-Variation (Gen-V) Clinic at Ramathibodi Hospital between August 2020 and February 2021. An online questionnaire was administered, including demographic data, history of gender affirmation, the Impulse, Self-harm, and Suicide Ideation Questionnaire for Adolescents (ISSIQ-A), and the Inventory of Parent and Peer Attachment-Revised (IPPA-R; parental part only). Descriptive statistics, chi-square tests, and adjusted logistic regression analyses were performed using SPSS v.18.0.

Results: The present study included 105 participants with a mean age of 29.2 years (range 18 to 53). Of these participants, 86.7% (n=91) identified as trans men, 36.2% (n=38) reported a history of lifetime non-suicidal self-injury (NSSI), 78.1% (n=82) reported engaging in other self-harm behaviors, and 52.4% (n=55) reported suicidal ideation, respectively. Higher scores on the parental attachment scale were associated with a decreased likelihood of suicidal ideation (adjusted odds ratio [aOR] 0.90, 95% CI 0.86 to 0.95, p<0.001). Additionally, participants who had undergone gender-affirming surgery were less likely to engage in NSSI (aOR 0.33, 95% CI 0.12 to 0.95, p=0.039).

Conclusion: The present study demonstrates the overwhelming prevalence of NSSI, other self-harm behaviors, and suicidal ideation among individuals with gender dysphoria. Gender-affirming surgery and secure attachment with parents may contribute to lower rates of NSSI and suicidal ideation among them.

Keywords: Gender dysphoria; Non-suicidal self-injury; Suicidal ideation; Gender affirmation; Attachment

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The term “transgender” refers to a person whose gender assigned at birth does not align with their gender identity. According to a 2016 study in the United States, the number of transgender adults has significantly increased over the past decade, with a current estimate of 390 per 100,000 adults, or almost one million Americans⁽¹⁾. Recent

reviews of the epidemiology of gender dysphoria and transgender identity found a prevalence of self-reported transgender identity ranging from 0.1% to 1.3%^(2,3). Thailand, which has a larger transgender population compared to other Asian countries, shows a prevalence ranging from 1:180 to 1:300 of the Thai population identifying as transgender⁽⁴⁾. The authors’ clinic, the Gender-Variation (Gen-V) Clinic, is one of the few clinics in Thailand that provides holistic health services for the transgender population by a multidisciplinary team. Additionally, the clinic is the first transgender health clinic operated by a government section and has been opened for nine years, serving transgender people from various parts of the country.

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth edition (DSM-5)⁽⁵⁾, gender dysphoria is characterized by marked incongruence between one’s experienced gender

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and assigned gender, leading to significant distress and impairment in functioning. The prevalence of gender dysphoria is estimated at 5 to 14 per 1,000 for individuals assigned male at birth and 2 to 3 per 1,000 for those assigned female at birth⁽⁵⁾, which is lower than the prevalence of self-reported transgender identity at 0.5% to 1.3% in the general population⁽²⁾. This discrepancy aligns with the American Psychiatric Association's (APA) statement that "Some people who are transgender will experience gender dysphoria"⁽⁶⁾. A recent review also indicated that the prevalence of self-reported transgender identity is higher than prevalence rates based on clinic-referred samples⁽²⁾. Studies have demonstrated that individuals with gender dysphoria who underwent gender-affirming hormones or surgery experienced a lower risk of depression and suicidality^(7,8), as well as a reduction in the use of mental health service⁽⁹⁾. This trend is further supported by a study in Thailand, which reveals that, despite a lower incidence of depression and other mental health problems among transgender individuals who have undergone gender affirmation compared to those who have not, the risk remains significant^(10,11). Consequently, those with gender dysphoria, especially those who have not undergone gender-affirmation, may face more psychological distress compared to individuals without this condition. Moreover, minority stress is considered one of the potential factors contributing to mental health issues among transgender individuals.

The minority stress model proposes that sexual minority individuals are at a higher risk for mental health disparities due to stressors induced by a hostile, anti-LGBTQ bias, which often results in a lifetime of harassment, maltreatment, discrimination, and victimization⁽¹²⁾. Moreover, minority stress may attenuate social and psychological resources that are essential to health outcomes⁽¹³⁾. These experiences can lead to a lifetime of negative mental health outcomes among transgender individuals. Studies have documented a higher incidence of mental health conditions among the transgender population, including mood disorders, NSSI, and suicide attempts^(3,14).

A U.S. sample of 1,093 transgender individuals demonstrated a high prevalence of depression at 44.1%, anxiety at 33.2%, and somatization at 27.5%⁽¹⁵⁾. In the largest U.S. national study to date, with 6,456 respondents, 41.0% report having attempted suicide, which is 26 times higher than the general population⁽¹⁶⁾. According to the Youth Risk Behavior Survey (YRBS) study, which collected

data from 131,901 adolescents in 10 states in the U.S., 34.6% of transgender participants, or 1.8% of total participants, attempted suicide in the last 12 months⁽¹⁷⁾. Similarly, based on a study by the Trevor project, 42.0% of 34,759 LGBTQ youth reported seriously considering attempting suicide in the past year⁽¹⁸⁾. A literature review investigated a sample of 237 LGBT youths (8.8% self-identified as transgender) and reported that 11 out of 21 transgender individuals (52.4%) attempted suicide during their life time⁽¹⁹⁾. In 2020, the World Health Organization (WHO) reported that Thailand leads the Association of Southeast Asian Nations (ASEAN) for suicide rates, with a rate of 14.4 for every 100,000 population⁽²⁰⁾. However, the prevalence of suicidality in transgender individuals was not investigated in the WHO report.

In 2013, non-suicidal self-injury (NSSI) was categorized in the DSM-5 under Emerging Measures and Models, as a condition that requires further investigation⁽⁵⁾. NSSI refers to the direct, intentional injury of one's own body tissue without suicidal intent, such as cutting, burning, and hitting oneself. The Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders, text revision (DSM-5-TR)⁽²¹⁾, introduced in 2022, included a significant update by adding diagnostic codes for suicidal behavior and NSSI in the section titled "Other Conditions That May Be a Focus of Clinical Attention". This inclusion aims to enhance documentation and the estimation of risk factors for future suicide attempts or deaths and encourages research targeting the treatment of these behaviors specifically, rather than merely addressing them as symptoms of an associated condition such as major depressive disorder.

A study conducted in the U.S. has shown that transgender individuals reported 14.8 times the odds of engaging in NSSI than gay and bisexual males⁽²²⁾. Studies have shown that youth NSSI is a risk factor for suicidal attempts throughout adulthood, and NSSI seems a potentially identifiable risk factor for suicidal attempts^(23,24). Specifically, the presence of NSSI is associated with a 3-fold increase in the risk of suicidal attempts⁽²⁵⁾. Moreover, transgender people are at a higher risk of engaging in self-harm behaviors such as substance abuse and unsafe sex-related behaviors, than cisgender individuals, with high rates of alcohol, marijuana, and methamphetamine use, lifetime injection drug or illegal hormones use, and recent engagement in sex work among trans women⁽²⁶⁾.

Given the heightened risk of suicide-related behaviors among the individuals with gender

dysphoria, investigating the factors contributing to better mental health outcomes is crucial. Established suicide risk factors include mental disorders, bullying, problematic behaviors, and experiencing childhood adverse events⁽²⁷⁾. The Interpersonal-Psychological Theory of Suicidal Behavior (IPT) posits that social alienation and feeling of burdensomeness contribute to suicidality⁽²⁸⁾. Attachment theory, which explains how early experiences shape future security and interpersonal relationships, offers a valuable framework for understanding the development of suicide⁽²⁹⁾. Insecure attachment has been linked not only to suicidality but also to emotional^(30,31) and behavioral problems⁽³²⁾, which are prospective risk factors for suicide⁽³³⁾. Conversely, secure attachment fosters a sense of self as valued and reliable⁽³⁴⁾, and family acceptance has been shown to positively impact self-esteem and social support, as well as protect against depression and suicide⁽³⁵⁾. In contrast, higher rates of family rejection were significantly associated with higher odds of suicide attempts, depression, and other self-harm behaviors⁽³⁶⁾.

Individuals with gender dysphoria may seek gender affirmation, including hormone therapy and/or surgical changes to the genitalia and other gender characteristics. These interventions align the physical body with one's gender identity, potentially alleviating distress through decreasing their body dissatisfaction⁽³⁷⁻³⁹⁾ and leading to improved mental health outcomes, including reducing suicidality^(8,40). According to the Standards of Care Version 8 by the World Professional Association for Transgender Health (WPATH), the initiation of gender-affirming hormones is recommended⁽⁴¹⁾. Research has demonstrated that this approach can significantly improve psychological well-being and overall functioning in the long term⁽⁴²⁾. Studies have explored the effects of gender-affirming surgeries on the quality of life of individuals with gender dysphoria. For instance, two studies conducted in Thailand specifically examined the impact of gender-affirming surgery on the quality of life of transgender women^(43,44). Additionally, research has indicated that mastectomy improved the quality of life for trans men⁽⁴⁵⁾ and chest reconstructive surgery has been associated with decreased depression and chest dysphoria in transgender individuals^(45,46).

In summary, the study on the prevalence of NSSI and suicidality among individuals with gender dysphoria, particularly within the clinical population in Thailand, is limited. Additionally, the relationship between parental attachment, gender affirmation,

and suicide-related behaviors in this population has not been clearly understood, yielding inconsistent findings. Therefore, the authors aimed to investigate the prevalence of suicide-related behaviors among individuals with gender dysphoria and to determine the association between parental attachment, gender-affirmation, and suicide-related behaviors. The authors hypothesized that gender affirmation and higher parental attachment are associated with lower rates of suicide-related behaviors compared to those who do not receive gender affirmation and have lower levels of parental attachment.

Materials and Methods

Participants and sample size calculation

To ensure statistical reliability, the sample size was carefully determined based on Cochran's formula, considering the expected prevalence rates⁽³⁾ and the desired confidence interval. This approach resulted in identifying a target sample size of 120 individuals, which was suitable for achieving the study's objectives while ensuring accuracy and representativeness of the findings.

One hundred twenty transgender individuals attended the clinic between August 2020 and February 2021. Inclusion criteria included receiving a gender dysphoria diagnosis according to DSM-5 by a psychiatrist, being over 18 years old, and fluency in the Thai language. Exclusion criteria included those diagnosed with intellectual disability, low to moderate functioning autism spectrum disorder, and active schizophrenia or bipolar disorder, as these conditions may limit the participants' ability to comprehend and respond to the questionnaires. The present study received full approval from the Institutional Ethical Review Board under the code MURA2020/1267. The authors confirmed that all the methods were carried out in accordance with the relevant guidelines and regulations.

Verbal informed consent was provided to all participants, explaining the study's purpose and procedures, before they were directed to an online consent form. Written informed consent was then obtained from all participants through this form prior to their participation in the present study.

Main-outcome measures

Participants completed a self-reported online questionnaire divided into four parts as follows:

1) Demographic data: This section included questions about age, gender, socioeconomic status, educational level, employment status, and relationship

status. Participants were specifically asked about their monthly income, with response options of “not enough”, “enough”, and “enough to save up”. Participants who responded as “not enough” were categorized as experiencing financial burdens.

2) History of gender affirmation: Participants were asked whether they had ever received gender-affirming hormonal therapy or undergone gender-affirming surgery. Response options for the former were “never received”, “planning to receive”, or “receiving”, while response options for the latter were “never received/planning to undergo” or “underwent”. Here, “surgery” encompasses both top, which is chest reconstruction or augmentation, and bottom, which is genital reconstruction, surgeries, acknowledging their critical roles in affirming gender identity, mitigating gender dysphoria, and enhancing societal integration for individuals with gender dysphoria. This broad definition reflects the surgeries’ shared objective of facilitating a body that aligns more closely with an individual’s gender identity, thereby supporting their overall well-being.

3) The Impulse, Self-harm, and Suicide Ideation Questionnaire for Adolescents (ISSIQ-A)⁽⁴⁷⁾ assesses NSSI, self-harm, and suicidal ideation through a comprehensive questionnaire. Despite its initial development for adolescents, the ISSIQ-A was chosen for its thorough examination of various NSSI behaviors^(48,49), including the motivation behind them. This instrument has been utilized in studies⁽⁵⁰⁻⁵²⁾ and its original version has been validated in clinical populations similar to those in the current study. This suggested that its application can be successfully extended to young adult populations. Moreover, NSSI behaviors are not exclusive to adolescent populations but are also prevalent among young adults. This selection was reinforced by evidence suggesting that the core features and motivations behind NSSI behaviors exhibit significant continuity from adolescence into young adulthood⁽⁵³⁾, making the ISSIQ-A a relevant tool for the present study despite the older age range of our participants. Additionally, a systematic review highlights the ISSIQ-A’s capability to provide in-depth insights into NSSI behaviors, affirming our choice for a thorough investigation of these issues in our participant group⁽⁴⁸⁾.

The ISSIQ-A was adapted from English to Thai translation to ensure cultural relevance, comprising four subscales, Impulsivity, Self-harm behaviors including NSSI and other behaviors like unsafe driving, Self-harm motives, and Suicidal ideation. Responses capture the lifetime occurrence of these

behaviors on a scale from never to always, and for self-harm motives, the most common motives are highlighted. Adjustments were initially made to align with the Thai cultural context, such as changing idioms and drug references to be locally understandable. For example, “people say I am at 1,000 mph” was changed to “people say I am impulsive” to suit local idiomatic expression, and “I abuse light drugs” was modified to “I abuse illegal substance” to better reflect the drug usage context in Thailand, acknowledging the variability in common substances across different regions. Following these adaptations, a pilot testing process was conducted by trialing the translated and culturally adapted questionnaire with 10 participants from the target demographic. Their feedback on clarity, cultural relevance, and understanding of the items was then incorporated into the final version of the questionnaire.

The measure’s validity was supported by high item objective congruence (IOC) scores, as evaluated by experienced psychiatrists, demonstrating strong content relevance with an overall IOC of 0.89. The scores across its subscales range from 0.88 to 1.00. Furthermore, reliability was excellent overall, with an alpha coefficient (α) of 0.94, and varied from good to excellent across the subscales, with alpha ranges from 0.71 to 0.96. This underscores the measure’s consistent effectiveness in assessing NSSI and related behaviors within the study’s context.

4) Parental part of inventory of peer and parental attachment-revised (IPPA-R)⁽⁵⁴⁾: This self-report measure, translated by Luckthong et al.⁽⁵⁵⁾, assesses attachment between participants and their parents with 28 items across three subscales, trust, communication, and alienation using a three-point scale. In the present study, the questionnaire’s Cronbach’s alpha was 0.93, indicating excellent reliability. The total attachment score combined the trust and communication subscales and reverses the alienation score, with higher overall scores indicating stronger attachment.

Analyses

All data analyses were performed using PASW Statistics, version 18.0 (SPSS Inc., Chicago, IL, USA)⁽⁵⁶⁾. Incomplete questionnaires were excluded from the analysis, and the present research team conducted a comprehensive review of the dataset to identify any potential duplications. Descriptive statistics were employed to summarize the demographic characteristics, suicide-related

behaviors, and IPPA scores. Differences in demographic characteristics, hormonal, and surgical interventions among participants who reported NSSI, self-harm, and suicidal ideation, and those who did not, were evaluated using chi-square tests, Fisher's exact tests, and independent samples t-tests, depending on the nature of each variable.

The adjusted logistic regression analysis explored the impact of demographic factors, gender affirmation history, and parental attachment on suicide-related behaviors among individuals with gender dysphoria. Variables were chosen based on their relevance to participants' experiences and potential mental health impacts. Identity reflects personal and social dimensions, civil status, employment, and financial burden indicate socioeconomic influences, education relates to resource access, gender affirmation addresses medical transition impacts, and parental attachment gauges support system roles. Significance was rigorously assessed at a p-value less than 0.01 with Bonferroni correction, emphasizing the comprehensive analyses of these critical factors.

Results

Of the 120 individuals who attended the transgender clinic during the study period, 114 consented, while six declined to participate. Of these, 105 individuals completed the self-reported questionnaire and met the inclusion criteria as three were excluded for being under 18 years old, and six were excluded for not completing the questionnaire (Figure 1).

The sample comprised 91 trans men participants (86.7%) and 14 trans women participants (13.3%). The mean age of the participants was 29.23±0.7 years (min-max 18 to 53). Eighty-three participants (79.0%) were using gender-affirming hormones, while 41 (39.0%) had undergone gender-affirming surgery. Additionally, 34 participants (32.4%) had received both gender-affirming hormones and surgery (Table 1). Regarding civil status, the majority of participants were in a relationship at 55.2%, employed at 81.9%, held a college degree or higher at 85.7%, and did not report financial struggle at 93.3%. The results showed a mean total IPPA-R score of 64.86±10.4 (min-max 10 to 54) (Table 1).

The prevalence of suicide-related behaviors and their association with gender affirmation and participant's perceived attachment to their parent

Overall, 38 participants (36.2%) reported having engaged in NSSI in their lifetime (Table 1), with the

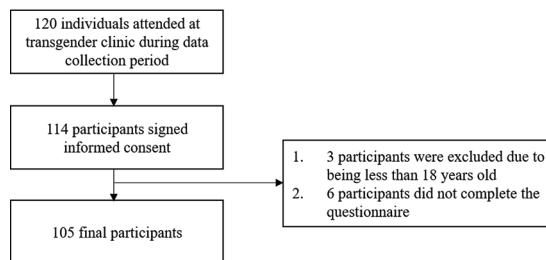


Figure 1. Flow diagram of participants.

Table 1. Descriptive statistics of demographic data, gender affirmation, suicide-related behaviors, and parental attachment

| Demographics | n=105 |
|-------------------------------------|------------|
| Identity; n (%) | |
| Trans men | 91 (86.7) |
| Trans women | 14 (13.3) |
| Age (years); mean±SD | |
| | 29.23±0.7 |
| Civil status; n (%) | |
| Single | 47 (44.8) |
| In a relationship | 58 (55.2) |
| Employment status; n (%) | |
| Unemployed | 19 (18.1) |
| Employed | 86 (81.9) |
| Education; n (%) | |
| High school | 15 (14.3) |
| College degree or higher | 90 (85.7) |
| Financial insufficiency; n (%) | |
| Yes | 7 (6.7) |
| No | 98 (93.3) |
| Hormone use; n (%) | |
| Yes | 83 (79.0) |
| No | 22 (21.0) |
| Surgery; n (%) | |
| Yes | 41 (39.0) |
| No | 64 (61.0) |
| Both surgery and hormone use; n (%) | |
| Yes | 34 (32.4) |
| No | 71 (67.6) |
| NSSI; n (%) | |
| Yes | 38 (36.2) |
| No | 67 (63.8) |
| Other self-harm; n (%) | |
| Yes | 82 (78.1) |
| No | 23 (21.9) |
| Suicidal ideation; n (%) | |
| Yes | 55 (52.4) |
| No | 50 (47.6) |
| IPPA-R; mean±SD | 64.86±10.4 |

SD=standard deviation; NSSI=non-suicidal self-injury; IPPA-R=scores of inventory of peer and parental attachment-revised parental part

Table 2. Chi-square and Fisher's exact test results for non-suicidal self-injury, other self-harm behaviors, and suicidal ideation among participants based on demographic characteristics and history of gender affirmation (n=105)

| Demographic and clinical data | Non-suicidal self-injury | | | | Other self-harm behaviors | | | | Suicidal ideation | | | |
|-------------------------------|--------------------------|------------|----------------|--------------------|---------------------------|------------|----------------|---------------------|-------------------|------------|----------------|--------------------|
| | Yes; n (%) | No; n (%) | X ² | p-value | Yes; n (%) | No; n (%) | X ² | p-value | Yes; n (%) | No; n (%) | X ² | p-value |
| Identity | | | 0.42 | 0.526 ^a | | | 7.45 | 0.006 ^{**} | | | 0.15 | 0.702 |
| Trans men | 34 (37.36) | 57 (62.64) | | | 75 (82.42) | 16 (17.58) | | | 47 (51.65) | 44 (48.35) | | |
| Trans women | 4 (28.57) | 10 (71.43) | | | 7 (50.00) | 7 (50.00) | | | 8 (57.14) | 6 (42.86) | | |
| Civil status | | | 0.00 | 0.997 | | | 7.33 | 0.007 ^{**} | | | 0.02 | 0.881 |
| Single | 17 (36.17) | 30 (63.83) | | | 31 (65.96) | 16 (34.04) | | | 25 (53.19) | 22 (46.81) | | |
| In a relationship | 21 (36.21) | 37 (63.79) | | | 51 (87.93) | 7 (12.07) | | | 30 (51.72) | 28 (48.28) | | |
| Employment status | | | 0.35 | 0.556 | | | 0.26 | 0.607 | | | 1.08 | 0.299 |
| Unemployed | 8 (42.11) | 11 (57.89) | | | 14 (73.68) | 5 (26.32) | | | 12 (63.16) | 7 (36.84) | | |
| Employed | 30 (34.88) | 56 (65.12) | | | 68 (79.07) | 18 (20.93) | | | 43 (50.00) | 43 (50.00) | | |
| Education | | | 0.69 | 0.407 ^a | | | 0.23 | 0.630 ^a | | | 3.08 | 0.079 ^a |
| High school | 4 (26.67) | 11 (73.33) | | | 11 (73.33) | 4 (26.67) | | | 11 (73.33) | 4 (26.67) | | |
| College degree or higher | 34 (37.78) | 56 (62.22) | | | 71 (78.89) | 19 (21.11) | | | 44 (48.89) | 46 (51.11) | | |
| Financial insufficiency | | | 0.19 | 0.664 ^a | | | 5.44 | 0.020 ^{**} | | | 1.09 | 0.296 ^a |
| Yes | 2 (28.57) | 5 (71.43) | | | 3 (42.86) | 4 (57.14) | | | 5 (71.43) | 2 (28.57) | | |
| No | 36 (36.73) | 62 (63.27) | | | 79 (80.61) | 19 (19.39) | | | 50 (51.02) | 48 (48.98) | | |
| Hormones+ | | | 0.00 | 0.985 | | | 0.47 | 0.494 | | | 0.54 | 0.464 |
| No | 8 (36.36) | 14 (63.64) | | | 16 (72.73) | 6 (27.27) | | | 10 (45.45) | 12 (54.55) | | |
| Yes | 30 (36.14) | 53 (63.86) | | | 66 (79.52) | 17 (20.48) | | | 45 (54.22) | 38 (45.78) | | |
| Surgery# | | | 5.91 | 0.015 [*] | | | 0.95 | 0.329 | | | 3.21 | 0.073 |
| No | 29 (45.31) | 35 (54.69) | | | 52 (81.25) | 12 (18.75) | | | 38 (59.38) | 26 (40.62) | | |
| Yes | 9 (21.95) | 32 (78.05) | | | 30 (73.17) | 11 (26.83) | | | 17 (41.46) | 24 (58.54) | | |

+ Used gender-affirming hormones, # Underwent gender-affirming surgery

^a Data analysis was performed using Fisher's exact test, * p<0.05, ** p<0.01, *** p<0.001

three most common methods being hurting at 24.9%, hitting at 21.9%, and scratching themselves at 12.5% on purpose. Additionally, 82 participants (78.1%) reported engaging in other self-harm behaviors, including reckless driving for 61.9%, alcohol abuse for 35.2%, and engaging in promiscuous sexual behaviors for 16.2%. The top three motives for NSSI and other self-harm behaviors reported were controlling anger for 20.1%, calming themselves for 17.2%, and stopping feeling of sadness or depression for 17.2%. Among the 105 participants, 55 (52.4%) reported experiencing suicidal ideation (Table 1), with 45 (42.9%) feeling hopeless and helpless, 40 (38.1%) having passive death wishes, and 26 (24.8%) having thoughts of suicide in their lifetime.

Additionally, the present study data revealed associations between identifying as trans men ($X^2=7.45$, $p=0.006$), being in a relationship ($X^2=7.33$, $p=0.007$), experiencing financial burdens ($X^2=5.44$, $p=0.020$), and higher rates of other self-harm behaviors. Furthermore, the data also showed an association between the absence of gender-affirming surgery and a higher prevalence of lifetime NSSI ($X^2=5.91$, $p=0.015$) (Table 2).

Prediction of suicide-related behaviors in individuals with gender dysphoria

The authors found that participants who underwent gender-affirming surgery reported lower odds of NSSI compared to those who had not received surgery (aOR 0.33, 95% CI 0.12 to 0.95, $p=0.039$). However, this finding was not statistically significant after adjusting for multiple comparisons using the Bonferroni correction. In addition, the authors found a higher attachment to one's parents was associated with lower odds of suicidal ideation in the participants (aOR 0.90, 95% CI 0.86 to 0.95, $p<0.001$) (Table 3).

Discussion

The present study investigated the prevalence of NSSI, other self-harm behaviors, and suicidal ideation, and their association with gender affirmation and participants' perceived attachment to their parents among individuals with gender dysphoria. The present study revealed a concerning prevalence of suicide-related behaviors among individuals with gender dysphoria attending the authors' clinic. Notably, gender affirmation, particularly through gender-affirming surgery, and the quality of parental

Table 3. Logistic regression analysis of factors predicting suicide-related behaviors (n=105)

| Demographic and clinical data | Non-suicidal self-injury | | | | Other self-harm behaviours | | | | Suicidal ideation | | | |
|-------------------------------|--------------------------|---------|------------------------|---------|----------------------------|---------|-------------------------|---------|-------------------------|---------|-------------------------|---------|
| | OR (95% CI) | p-value | aOR (95% CI) | p-value | OR (95% CI) | p-value | aOR (95%CI) | p-value | OR (95% CI) | p-value | aOR (95%CI) | p-value |
| Age | 0.97 (0.92 to 1.03) | 0.364 | 0.99 (0.92 to 1.07) | 0.698 | 0.98 (0.93 to 1.05) | 0.610 | 0.96 (0.88 to 1.04) | 0.289 | 0.96 (0.90 to 1.01) | 0.105 | 0.97 (0.89 to 1.04) | 0.337 |
| Trans men | 1.49 (0.43 to 5.13) | 0.526 | 0.76 (0.20 to 2.91) | 0.693 | 4.69 (1.44 to 15.23) | 0.010 | 2.97 (0.81 to 10.92) | 0.101 | 0.80 (0.26 to 2.49) | 0.702 | 0.76 (0.19 to 2.96) | 0.690 |
| Highschool | 0.60 (0.18 to 2.03) | 0.411 | 0.26 (0.06 to 1.05) | 0.058 | 0.74 (0.21 to 2.57) | 0.631 | 0.41 (0.08 to 1.96) | 0.261 | 0.35 (0.10 to 1.17) | 0.089 | 1.99 (0.46 to 8.71) | 0.359 |
| Unemployed | 1.36 (0.49 to 3.74) | 0.554 | 0.97 (0.28 to 3.28) | 0.956 | 0.74 (0.24 to 2.33) | 0.608 | 0.87 (0.21 to 3.71) | 0.854 | 0.58 (0.21 to 1.62) | 0.302 | 1.01 (0.29 to 3.57) | 0.982 |
| Financial insufficiency | 0.69 (0.13 to 3.74) | 0.666 | 0.38 (0.60 to 2.42) | 0.305 | 0.18 (0.04 to 0.87) | 0.033 | 0.16 (0.02 to 1.02) | 0.053 | 2.40 (0.44 to 12.97) | 0.309 | 2.73 (0.42 to 17.62) | 0.293 |
| Single | 0.99 (0.45 to 2.22) | 0.997 | 1.13 (0.43 to 2.94) | 1.126 | 0.27 (0.09 to 0.72) | 0.009* | 0.31 (0.09 to 1.04) | 0.057 | 1.06 (0.49 to 2.29) | 0.881 | 0.59 (0.22 to 1.62) | 1.691 |
| Hormones+ | 0.99 (0.38 to 2.63) | 0.985 | 0.99 (0.32 to 3.00) | 0.979 | 1.46 (0.49 to 4.28) | 0.495 | 1.32 (0.35 to 4.93) | 0.684 | 1.42 (0.55 to 3.65) | 0.466 | 0.92 (0.31 to 2.74) | 0.879 |
| Surgery# | 0.34 (0.14 to 0.83) | 0.017 | 0.33 (0.12 to 0.95) | 0.039 | 0.63 (0.25 to 1.60) | 0.331 | 0.53 (0.14 to 1.94) | 0.338 | 0.49 (0.22 to 1.08) | 0.075 | 1.16 (0.41 to 3.27) | 0.780 |
| Total IPPA | 0.96 (0.92 to 0.99) | 0.029 | 0.96 (0.92 to 1.00) | 0.069 | 0.97 (0.93 to 1.02) | 0.245 | 0.97 (0.91 to 1.02) | 0.244 | 0.91 (0.86 to 0.94) | <0.001* | 0.90 (0.86 to 0.95) | <0.001* |

OR=odd ratio; aOR=adjusted odd ratio; CI=confidence interval; IPPA=inventory of peer and parental attachment

+ Used gender-affirming hormones, # Underwent gender-affirming surgery

Reference variables: trans women, Bachelor's to Master's degree or equivalent, employed, no financial burden, in a relationship, no history of gender affirmation

* p<0.01

attachment emerged as significant factors associated with these behaviors.

Prevalence of suicide-related behaviors in individuals with gender dysphoria

Similar to a previous report on NSSI among transgender people in a Belgian study, the authors' clinic-based sample reported a comparable rate of NSSI at 36.2% versus 36.8%⁽⁵⁷⁾. However, the data show a lower prevalence compared to transgender population from community-based sample at 53.3% in previous literature⁽⁵⁸⁾. The reasons behind this lower prevalence of NSSI might be due to their better access to healthcare, especially gender affirmation, when compared to transgender in general population. Anger and the urge to feel calm were found to be the top reasons that motivated the participants to self-harm, followed by the relief of sadness after such behavior. In line with the findings of previous research, emotion regulation and self-punishment are often described as the most important functions of NSSI in the general population, as well as in gender minorities' population⁽⁵⁹⁻⁶¹⁾.

On the other hand, the present study participants reported lower rates of suicidal ideation compared to transgender participants from a Chinese national study at 52.4% versus 56.4%⁽⁶²⁾. However, the prevalence was higher compared to a statewide survey in 2018 that showed 49.3% for transgender individuals⁽⁶³⁾. This disparity may be due to sociocultural factors, such as religion and political systems, contributing

to social ostracization and discrimination against transgender individuals⁽⁶⁴⁾, leading to increased rates of depression and suicidal ideation. Furthermore, NSSI is often comorbid with other forms of self-harm and suicidal ideation, as noted by a systematic review by Nock et al.⁽⁶⁵⁾ and a study by Kidger et al.⁽⁶⁶⁾. However, it is important to acknowledge that while NSSI is a strong predictor of suicidal behavior, not all individuals who engage in NSSI will progress towards suicidal ideation and suicide attempts. Given the present study is cross-sectional, the authors cannot conclude whether NSSI can predict suicidal ideation or suicide attempts.

Association among suicide-related behaviors, gender affirmation, and parental attachment

The present study data indicates an association between gender-affirming surgery and lower rates of NSSI in individuals with gender dysphoria. This data are supported by previous literature, in which psychological benefits and improvements in quality-of-life outcomes such as self-esteem, body image-related quality of life⁽⁶⁷⁾, and sexual health^(68,69) have been documented after gender affirmation. Positive findings have been observed with bilateral mastectomy⁽⁶⁷⁾ and genital gender-affirming surgery⁽⁶⁸⁾ in trans men, and facial feminization procedures⁽⁷⁰⁾ and vaginoplasty⁽⁶⁹⁾ in trans women. Moreover, another study showed that gender-affirming surgery resulted in higher sexual arousal and orgasmic functioning, which improved their sexual health and

may reduce gender dysphoria⁽⁷¹⁾.

In the present study, no association was found between the use of gender-affirming hormones and the rates of NSSI, other self-harm behaviors, or suicidal ideation. A previous study found a correlation between luteinizing hormone (LH) after hormonal therapy and improved quality of life⁽⁷²⁾, but the authors did not examine this. Therefore, the LH levels of the present study participants may not have been in the adequate range to improve their quality of life. In addition, although the use of gender-affirming hormone might change their physical appearance, decrease body dissatisfaction, and alleviate gender dysphoria⁽⁷³⁾, individuals still face many gender minority stresses that could potentially worsen their mental health. A previous study found that among 27,715 transgender adults, 13.1% reported a history of detransition, which is a process whereby a person discontinues some or all aspects of gender affirmation⁽⁷⁴⁾. This detransition was found to be associated with external pressures such as low societal acceptance^(74,75), lack of family support⁽⁷⁴⁾, and school-based harassment⁽⁷⁶⁾.

The present study found that higher parental attachment was associated with lower odds of having suicidal ideation, which is consistent with the previous studies that reported individuals with an insecure attachment style were more likely to engage in suicidal ideation⁽⁷⁷⁾. Secure attachment has been linked to reduced suicidal ideation⁽⁷⁷⁾, while insecure attachment with parents can increase vulnerability to suicidal thinking and behaviors⁽⁷⁸⁾. Based on attachment theory, a strong attachment with caregivers can lead to better self-efficacy and mental health outcome, especially for individuals with gender dysphoria. Therefore, it is crucial to assess attachment styles using reliable tools such as self-report questionnaires such as the IPPA-R or semi-structured interviews such as the adult attachment interview⁽⁷⁹⁾ in clinical settings that provide mental health care for transgender individuals. Additionally, clinicians can assist parents in addressing any challenges or concerns they may have regarding their child's gender identity^(80,81). Providing psychoeducation, resources, and support groups specifically tailored for parents of transgender individuals⁽⁸²⁾ can help strengthen the attachment bond and create a more positive and affirming environment for the individual. However, despite the theoretical significance and empirical evidence surrounding attachment styles, the authors did not come across specific clinical studies in our literature

review that utilized attachment style assessment to inform interventions in the transgender population. This highlights the importance of investigating potential interventions based on attachment styles specifically tailored to transgender individuals.

In addition, the present study also explored the association between attachment and NSSI and other self-harm behaviors, but no association was found. This differs from the previous findings linking secure attachment to lower odds of self-harm and suicidal attempts⁽⁸³⁾. One possible explanation might be due to the present study participants having a similar overall attachment score as the general Thai adolescent population at 64.86 ± 10.39 versus 65.24 ± 8.14 ⁽⁵⁵⁾. The higher attachment score may be due to the majority of participants being adults with accepting parents. According to Rosario and Schrimshaw, parents generally become more accepting of their child over time⁽⁸⁴⁾.

Limitation

The present research is among the first to document the association among parental attachment, gender affirmation, and suicide-related behaviors in individuals with gender dysphoria. Nevertheless, there are limitations to the present research. Firstly, its cross-sectional nature precludes establishing causality. Secondly, the reliance on U.S. prevalence rates for sample size calculation may not accurately reflect the Thai context, highlighting the need for local epidemiological studies to better tailor interventions for the transgender community in Thailand. Thirdly, the present study sample, drawn exclusively from a clinical setting, and the exclusion of individuals with specific psychiatric conditions, may not fully represent the broader transgender population. A notable limitation is the underrepresentation of trans women, which could affect the generalizability of the findings. Fourthly, the self-report questionnaire offered insights into participants' experiences and behaviors, but the authors recognize the potential for recall bias in assessing NSSI and suicidal ideation histories. For gender affirmation, we combined responses from those yet to receive therapy and those planning to undergo it, acknowledging not all transgender individuals seek such therapy. Readers should consider this in data interpretation. Despite targeting adolescents, the present study questionnaires showed high reliability in the study's population.

There are other factors related to NSSI and suicidal ideation that the present study did not

explore, including distal factors such as gender-related discrimination and non-affirmation of gender identity, as well as proximal factors such as comorbid psychiatric conditions, and internalized transphobia. Moreover, the authors acknowledge the potential interdependence among the independent variables, such as socioeconomic status, educational level, employment status, and gender affirmation. This interdependence could inflate the Type I error rate, underscoring the importance of applying correction methods like the Bonferroni correction to control this inflation. While the authors aimed to mitigate Type I errors with a significance level of 0.01, it is essential to acknowledge the potential for Type II errors, which may occur due to the stringent criterion. Lastly, the authors did not examine the duration of hormonal use in our participants which may influence NSSI and suicidal ideation. Future studies should investigate non-clinic samples, the prevalence of past-year NSSI behaviors and suicidal ideation, and the longitudinal effects of gender affirmation.

Conclusion

The present study revealed a concerning prevalence of suicide-related behaviors among transgender individuals with gender dysphoria attending the present study clinic. It identifies associations between gender-affirming surgery and lower instances of NSSI, as well as between strong parental attachments and reduced rates of suicidal ideation. These findings underscore the importance of accessible gender-affirming care and supportive family relationships in relation to the mental health of transgender individuals. Recommendations include fostering environments that support gender affirmation and enhance interpersonal relationships, which may contribute to lowering the occurrences of NSSI and suicidal ideation within this population.

What is already known on this topic?

Existing research highlights a surge in the transgender population and associated mental health challenges, including NSSI and suicidal ideation. The minority stress model underscores the adverse effects of discrimination on transgender mental health.

What does this study add?

The current study examines the prevalence of suicide-related behaviors in individuals with gender dysphoria, specifically within the clinical context of Thailand. It investigates the relationship between parental attachment, gender affirmation,

and suicide-related behaviors, hypothesizing that stronger parental attachment and gender affirmation are associated with lower rates of NSSI and suicidal ideation.

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Conflicts of interest

The authors declare no conflict of interest.

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