# Invisible Wounds: Non Suicidal Self Injury among Adolescents

**Mora Hakem Mosaad[(1)], Nashwa Ahmed Hussein Abdelkarim[(2)], Hanaa Hamdy Ali El-Zeiny [(3)] Basma Abd Elmajid Adly [(4)]**

(1) B.Sc. Nursing department, Faculty of Nursing, Zagazig University. (2) Assistant Professor of Psychiatric & Mental Health Nursing department, Faculty of Nursing , Zagazig university. (3) Professor of Psychiatric & Mental Health Nursing department, Faculty of Nursing , Zagazig university. (4) Lecturer of Psychiatric & Mental Health Nursing department ,Faculty of Nursing , Zagazig university.
Corresponding Author: Mora Hakem Mosaad

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***Abstract***

**Background: Background:** Adolescence is a critical developmental stage characterized by rapid physical, emotional, and social changes. Non Suicidal Self Injury refers to the deliberate, self-inflicted harm to one's body tissue without suicidal intent. Most commonly through behaviors such as cutting, burning, or hitting oneself. It has gained growing attention as a widespread mental health issue, especially among adolescents and young adults .**Aim:** To asess the prevalence of non suicidal self injury among adolescents .**Subjects and Methods**: A cross-sectional design was conducted in two secondary schools: Ahmed Abdallah Elkafrawy Secondary School for males and Diarb Elbalad Secondary School for females in Diarb Negm, Sharkia Governorate, Egypt. **Subjects: Sample:** A purposive sample of 332 adolescents participated. **Tools of data collection**: two tools were used for data collection. **Tool (I)** Personal characteristics data sheet, **Tool (II)** The Non-Suicidal Self-Injury Assessment Scale (NSSI-AS).**Results:** more than one fifth of the studied adolescents had non-suicidal self-injury trials. More than half had experienced a hand injury. A statistically significant relation between total non-suicidal self-injury among adolescents and their demographic data as gender, parents' marital status, ranking between brethren and receiving psychological support. **Conclusion**: The findings revealed a statistically significant association between NSSI and adolescents' demographic characteristics. **Recommendations**: Implement training programs for adolescents to increase awareness about NSSI, and early recognition of trials to enable timely intervention.

***Keywords:*** *Adolescents, Non Suicidal Self Injury.*

## Introduction

Adolescence, spanning ages 10 to 19, is a critical developmental stage characterized by significant physical, cognitive, and psychosocial transformations. These changes shape adolescents' emotions, thoughts, decision-making, and social interactions. Worldwide, this age group represents about 1.2 to 1.3 billion individuals—roughly 15–16% of the global population—making it the largest adolescent generation in history **(World Health Organization, 2024).**

Non-suicidal self-injury (NSSI) is defined as the intentional, repetitive, and systematic harm to one's own body tissues without suicidal intent. While it is not intended to end life, NSSI significantly elevates the lifetime risk of suicidal thoughts and behaviors by more than twenty fold. This behavior is often used as a way to relieve emotional distress or negative feelings, temporarily producing a sense of relief or positive sensation **(Du et al., 2021).**

Both NSSI and suicidal behavior (SB) represent serious public health issues among adolescents, shaped by multiple factors such as social contagion, interpersonal stress, neurobiological vulnerability, emotional dysregulation, and adverse childhood experiences **(Poudel et al., 2022).**

A recent meta-analysis of studies published between 2010 and 2021 reported a lifetime NSSI prevalence of 22.0% and a 12-month prevalence of 23.2% among non-clinical samples of adolescents worldwide **(Xiao et al.,2022) .**A comprehensive meta-analysis covering 38 studies with 266,491 adolescent participants revealed a pooled community lifetime prevalence of NSSI at 17.7%. Female adolescents were significantly more likely to engage in NSSI than males, with an overall female-to-male odds ratio (OR) of 1.60. In North America and Europe, the gender gap was even more pronounced (ORs of 2.49 and 2.08, respectively), while in Asia gender differences were not significant**(Moloney et al., 2024).**

Repetitive NSSI behaviour in early adolescence was associated with higher levels of stress, anxiety, NSSI, and emotion regulation difficulties ten years later in young adulthood **(Daukantaitė et al., 2021**) During the COVID-19 pandemic, the prevalence of NSSI in non-clinical samples reached 22.5%, with a higher prevalence of 32.40% in adolescents compared to adults **(Deng et al., 2023).**

**Significance of the Study:**

The prevalence of non-suicidal self-injury (NSSI) among adolescents is a significant public health concern with far-reaching consequences. The lifetime prevalence of non-suicidal self-injury among adolescents is around 22.0% **(Xiao et al.,2022).** Examining the prevalence, underlying factors, and psychosocial correlates of NSSI not only contributes to a deeper understanding of adolescent mental health but also provides valuable insights for the design of early detection strategies and targeted interventions. Furthermore, this study has practical significance for clinicians, educators, and caregivers, as it can enhance awareness, improve recognition of warning signs, and inform the development of effective prevention and treatment programs. On a broader level, findings may guide policymakers in integrating adolescent mental health services within schools and communities, thereby addressing a pressing public health concern. By contributing to the existing body of knowledge and filling cultural or regional research gaps, this study ultimately supports efforts to reduce the burden of self-injurious behaviors and promote healthier coping mechanisms among adolescents.

**Aim of the study:**

The aim of this study was to assess the prevalence non suicidal self injury among adolescents in Diarb Negm .

**Research questions:**

1- What is the prevalence of non suicidal self injury among adolescents ?
2- Clarify the methods of non suicidal self injury used by adolescents ?

**Subjects, methods:**

**Research design:**

A cross-sectional study was used .

**Study setting:**

The current study was conducted in two secondary schools in Diarb Negm Center, Sharkia Governorate, Egypt: Ahmed Abdallah Elkafrawy Secondary School for males and Diarb Elbalad Secondary School for females.

**Study subjects:**

Purposive sample composed of 332 adolescents from two secondary schools (140 adolescents from male school and 188 adolescents from female school, at confidence level 95% **(Thompson, 2012).** the population size is 1057 adolescents from the male school and 1381 adolescents from the female schools so according to Stephen thomoson 's equation in the following:

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

2438 * (0.5 * 0.5) = **609.5**

**n=** ——————————————————— **332**

2437 * (0.0025 / 3.8416) + 0.25= 1.**836487**

**Which:**

**n**= Sample size

**N**= Total population

**Z**= The standard value corresponding to confidence level 95% which is (1.96).

**d**= Error level 5%

**p**= 0.5.

- **Inclusion criteria:**

1- 15-19 years of age**.**
2- Years of education ≥ 6 years**.**
3- Both sexes are involved.
4- Willing to participate in the study**.**

- **Exclusion criteria:**

1- Adolescents with severe infectious or immune system diseases**.**
2- Adolescents with known serious organic brain or neurological diseases**.**
3- Adolescents with a history of schizophrenia, mental retardation, or other serious mental disorder.

**Tool for data collection:**

Data was gathered using two instruments:

**Tool (I): personal characteristics data sheet:**

It included characteristics of adolescents as age, gender, The academic year and religion…etc.

**Tool II: The Non-Suicidal Self-Injury Assessment Scale (NSSI-AS)**

This scale designed by **(Whitlock et al.,2014).** This scale used to assess the prevalence and patterns of non suicidal self injury. It is designed to measure the forms: identify the act that done to hurt yourself without end your life, functions: consist of 20 reasons that identify why you hurt yourself and have 4 lkert scale from 'strongly disagree' (score 1) to 'strongly agree' (score 4), frequency: identify the first time you hurt yourself , the last time you hurt yourself , how likely you hurt yourself again and how many time you hurt yourself, wound locations: identify area of body you hurt yourself, habituation and perceived life interference methods.

**Scoring system:**

Higher scores indicate high non suicidal self injury and lower scores indicate low non suicidal self injury.

**Content validity, reliability:**

Five psychiatric health nursing and medicine experts reviewed the study tool and made some changes based on their opinions to assess the study tool's content validity. The content validity of the study measures was examined in order to assess each item separately and ascertain whether or not it is pertinent and suitable to test the intended outcomes.

**The normality of the data distribution was assessed using the Shapiro–Wilk test (n = 332).**

| Tool | Shapiro-Wilk test | |
|---|---|---|
| | Statistic | Sig. |
| The Non-Suicidal Self-Injury Assessment Scale | .866 | 0.100 |

**Field work:**

The researcher visited the study settings and met with the school directors to explain the aim of the study and its procedures . This helped in gaining their cooperation, and also served to schedule the proper time for recruitment of the sample of students and for data collection . This phase lasting from beginning of November 2024 to end of January 2025 . The researcher collect the data regularly, one day/week( Sunday ) and spent two hours daily from 10 am to 12pm during the day.

**Pilot study:**

A pilot study was conducted on a small sample representing about 10%(33 students) of the calculated total sample size. The aim was to test the clarity and feasibility of the tools, the comprehension of items, and to estimate the exact time required for filling out the data collection forms. According to the pilot study results, the time needed to fill out the tools was about 20–30 minutes. The adolescents who participated in the pilot study were included in the study sample (Approximately 6 students were randomly selected From each academic stage in both schools), as no modification was needed in the data collection form.

**Administration and ethical consideration:**

Of The study proposal was approved by the Ethical Committee at the Faculty Nursing at Zagazig University with code M.DZU.NUR/233/9/7/2024. A written consent for participation in the study was obtained from the adolescents after fully explaining the aim of the study. The studied adolescents were given the opportunity to refuse participation and were notified that they could withdraw at any stage of filling out the tools. Also, the studied adolescents were assured that the information would be confidential and used only for research purposes. Additionally, the confidentiality and anonymity of the participants were assured through the coding of all data.

**Statistical analysis:**

The statistical analysis of data was done by using the computer software of Microsoft Excel Program and Statistical Package for Social Science (SPSS) version 25. Data were presented using descriptive statistics in the form of frequencies and percentage for categorical data, the arithmetic mean (X) and standard deviation (SD) for quantitative data. Qualitative variables were compared using chi square test, P-value to test association between two variables. The normality of the data distribution was assessed using the Shapiro–Wilk test. Correlation coefficient test (r) was used to test the correlation between studied variables. Linear regression model was used to analysis of the relation between the relationship between child abuse, depression and non suicidal self injury among adolescents. Reliability of the study tools was done using Cronbach's Alpha.

**Results:**

**Table (1)**: shows that 63.3% of the studied adolescents were aged between 15-17 years old, the mean of age ± SD 17.10 ±0.296 years. Also, 56.6% of them were female. Furthermore, 97.6% of them were Muslims. Moreover, 35.0% of them were in the second year of secondary education. In addition, 88.0% of them reside at rural areas. Also, 27.7% of them their parents were married. Likewise, 28.6% of them were third sons between their brethren.

**Figure (1):** shows that, 21.1% of the studied adolescents had non-suicidal self-injury trials. While, 78.9% of them hadn't trials.

**Figure (2**): shows that, 58.0% of the studied adolescents had experienced a hand injury. Also, 30.0% of them had experienced a wrists injury.

**Table (2):** displays that, there was highly statistically significant relation between total non-suicidal self-injury among adolescents and their demographic data as gender, parents' marital status, ranking between brethren and receiving psychological support at (P= < 0.01). While there was no statistically significant relation with their age, academic year, religion, and residence at (P= > 0.05).

**Table (1):** Frequency of the studied adolescents according to their personal characteristics data **(n=332).**

| Personal characteristics data | No. | % |
|---|---|---|
| **Age** | | |
| 15-17 | **210** | **63.3** |
| 18-19 | 122 | 36.7 |
| **17.10 ±0.296** **Mean ± SD** | | |
| **Gender** | | |
| Male | 144 | 43.4 |
| Female | **188** | **56.6** |
| **Religion** | | |
| Muslim | **324** | **97.6** |
| Chrestian | 8 | 2.4 |
| **Academic year (Secondary education)** | | |
| First year | 108 | 32.5 |
| Second year | **116** | **35.0** |
| Third year | 108 | 32.5 |
| **Residence** | | |
| Rural | **292** | **88.0** |
| Urban | 40 | 12.0 |
| **Parents marital status** | | |
| Married | **92** | **27.7** |
| Separated | 48 | 14.5 |
| Divorced | 86 | 25.9 |
| Death of a spouse | 70 | 21.1 |
| Dead of parents | 36 | 10.8 |
| **Rank between brethren** | | |
| First | 44 | 13.3 |
| Second | 55 | 16.6 |
| Third | **95** | **28.6** |
| Fourth | 89 | 26.8 |
| Fifth | 37 | 11.1 |
| More than fifth | 12 | 3.6 |

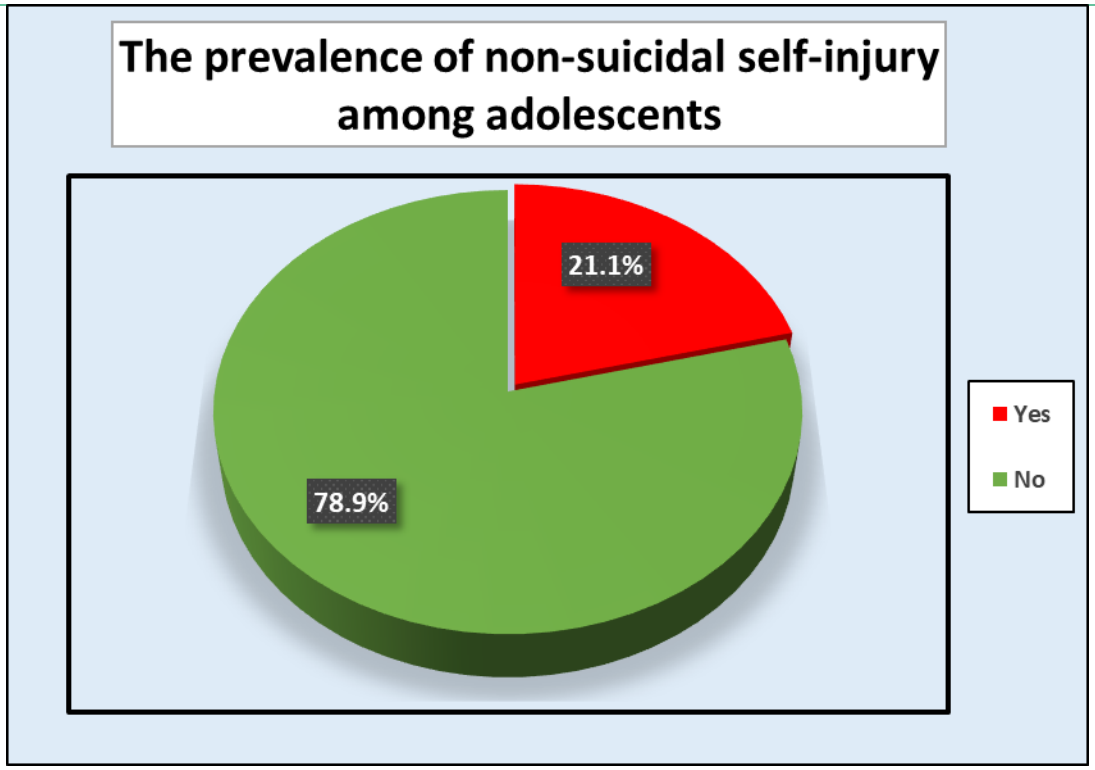


**Figure (1):** The prevalence of non-suicidal self-injury among adolescents **(n=332).**

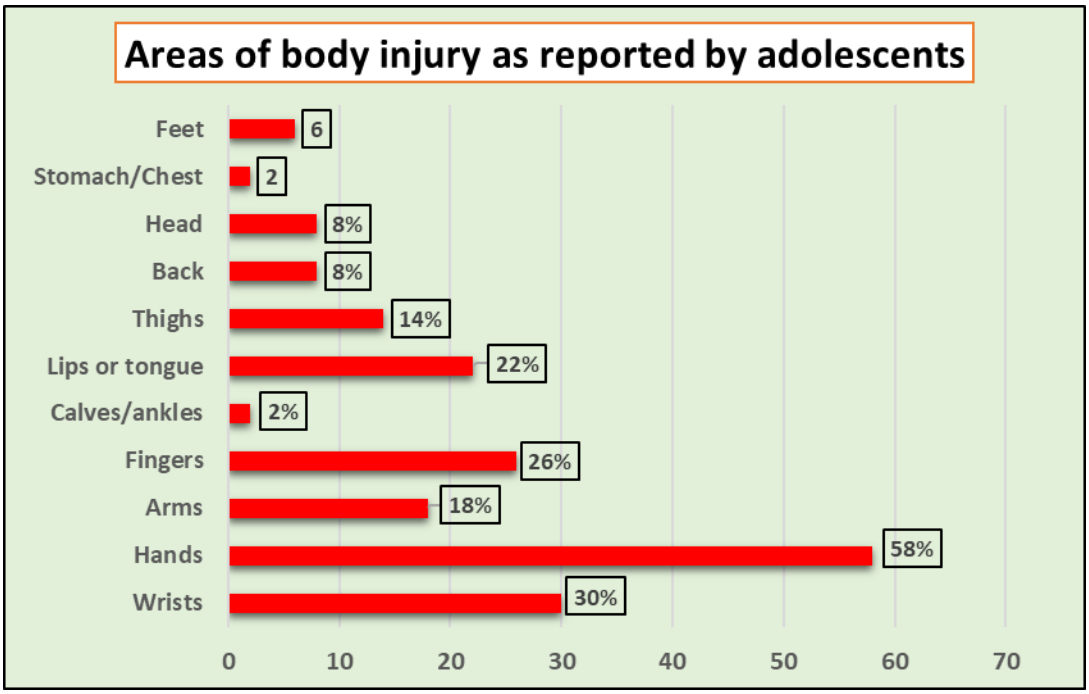


**Figure (2):** Areas of body injury as reported by adolescents **(n=50).**

**Table (2):** Relation between demographic data of the studied adolescents and their total non-suicidal self-injury **(n=332).**

| Demographic data | | Total non-suicidal self-injury among adolescents | | | | $X^2$ | P-Value |
|---|---|---|---|---|---|---|---|
| | | Yes (n=70) | | No (n=262) | | | |
| | | No. | % | No. | % | | |
| **Age (year)** | 15-17 | 47 | 67.1 | 163 | 62.2 | **0.577** | **0.447** |
| | 18-19 | 23 | 32.9 | 99 | 37.8 | | |
| **Gender** | Male | 43 | 61.4 | 101 | 38.5 | **11.77** | **0.001**** |
| | Female | 27 | 38.6 | 161 | 61.5 | | |
| **Religion** | Muslim | 68 | 97.1 | 256 | 97.7 | **0.076** | **0.783** |
| | Christian | 2 | 2.9 | 6 | 2.3 | | |
| **Academic year** | First year | 27 | 38.6 | 81 | 30.9 | **2.028** | **0.363** |
| | Second year | 20 | 28.6 | 96 | 36.7 | | |
| | Third year | 23 | 32.8 | 85 | 32.4 | | |
| **Residence** | Rural | 61 | 87.1 | 231 | 88.2 | **0.055** | **0.815** |
| | Urban | 9 | 12.9 | 31 | 11.8 | | |
| **Parents marital status** | Married | 0 | 0.0 | 92 | 35.1 | **98.73** | **0.000**** |
| | Separated | 8 | 11.4 | 40 | 15.3 | | |
| | Divorced | 45 | 64.3 | 41 | 15.6 | | |
| | Death of a spouse | 2 | 2.9 | 68 | 26.0 | | |
| | Dead of parents | 15 | 21.4 | 21 | 8.0 | | |
| **Ranking between brethren** | First | 0 | 0.0 | 44 | 16.8 | **162.67** | **0.000**** |
| | Second | 0 | 0.0 | 55 | 21.0 | | |
| | Third | 1 | 1.4 | 94 | 35.9 | | |
| | Fourth | 30 | 42.9 | 59 | 22.5 | | |
| | Fifth | 7 | 38.6 | 10 | 3.8 | | |
| | More than fifth | 12 | 17.1 | 0 | 0.0 | | |
| **Receiving psychological support** | Yes | 7 | 10.0 | 99 | 37.8 | **19.62** | **0.000**** |
| | **No** | **63** | **90.0** | **163** | **62.2** | | |

$X^2$= Chi-square test. No significant at $p > 0.05$. (**) Highly statistically significant at $p < 0.01$

**Discussion:**

**Regarding the prevalence of NSSI among studied adolescents in the current study:**

The present results demonstrated that, more than one fifth of adolescents reported engaging in non-suicidal self-injury. The presence of NSSI might be attributed to the use of NSSI as a maladaptive coping mechanism to regulate overwhelming emotions such as distress, anger, or sadness. Contributing factors may include exposure to adverse childhood experiences, family conflict, peer bullying, and limited access to psychological support services.

In the same line, the study in titled "Global prevalence and characteristics of non-suicidal self-injury between 2010 and 2021 among a non-clinical sample of adolescents: A meta-analysis" by **Xiao et al. (2022)** was conducted in Chengdu, China, found the lifetime aggregate prevalence of NSSI among 64,484 adolescents included in 29 studies was more than fifth.

Contrary to this finding, the study in titled "Prevalence and psychosocial risk factors of non suicidal self-injury among adolescents during the COVID-19 outbreak" by **Tang et al., (2023)** was conducted in Taiwan, found a 12-month NSSI prevalence of more than two fifth among junior high school students (around age 14–15) .

**Regarding to the area of body injury of the studied adolescents**, more than half experienced hand injuries, and nearly one third reported wrist injuries. This was probably due to make it easier to hide the real cause from their caregivers and easier to regulate pain and avoid life-threating harm.

In the same line, a study in titled "A retrospective research on non-suicidal self-injurious behaviors among young patients diagnosed with mood disorders" by **Zheng et al., (2022)** was carried out in Wuhan, illustrated that, NSSI behaviors among young patients (some adolescents included) reported that the "hand" was the most targeted body part, with nearly half of respondents injuring their hands, followed by lower arm/wrist (nearly one third).

In contrast with these results, the study in titled "Distribution and pattern of hand fractures in children and adolescents" by **Arneitz et al., (2023)** found that fractures affected mostly the fingers (phalanges more than three quarters), with only 3.7% diagnosed as carpal (wrist) bone fractures. The study also showed that among adolescents aged 13-17, 6.9% had carpal fractures.

**Relation between demographic data and non-suicidal self injury**

**Regarding to gender of the studied adolescents ,** the present study found that there was highly statistically significant relation between total non-suicidal self-injury (NSSI) and the gender($p < 0.001$). This might be explained by differences in emotional expression, coping styles, and social pressures between males and females. In many developing countries, cultural norms often allow females to express emotional distress more openly, leading to higher reported rates of NSSI, while males may resort to other externalizing behaviors such as aggression.

In accordance with this result, the study in titled "Sex differences in the global prevalence of non-suicidal self-injury in adolescents: a meta-analysis" by **Moloney et al., (2024)** was conducted by researchers based in Canada, demonstrated that a higher prevalence of NSSI among male adolescents in Asia compared with other regions.

In contrary to the study, the study in titled "A 2024 meta-analysis of 38 international studies (over 266,000 adolescents)" by **Moloney et al., (2024)** reported that NSSI is generally *much more common* in girls than in boys. Overall the pooled female: male odds ratio was about 1.60, and in North American and European samples.

**Regarding to parental marital status of the studied adolescents** , the present study found that there was highly statistically significant relation between total non-suicidal self-injury (NSSI) and parental marital status ($p < 0.001$). This might be explained by the emotional distress, instability, and family conflict that often accompany marital disruption, such as separation, divorce, or ongoing disputes. Adolescents from such households may experience feelings of neglect, insecurity, or abandonment, which can increase vulnerability to maladaptive coping mechanisms like NSSI. In developing countries, limited access to psychological support and the stigma surrounding mental health may further drive adolescents to express or manage emotional pain through self-injurious behaviors.

In accordance with this result, the study in titled "Is nonsuicidal self-injury associated with parenting and family factors?" by **Baetens et al., (2014)** confirmed that children living in one-parent families or with parental marital discord show higher rates of NSSI, emphasizing family structure as an important factor influencing self-injury risk.

**Regarding to ranking between siblings of the studied adolescents** , the present study found that there was highly statistically significant relation between total non-suicidal self-injury (NSSI) and ranking between siblings ($p < 0.0001$). This might be related to differences in parental expectations, distribution of attention, and role demands associated with birth order. Firstborn adolescents often shoulder greater responsibilities and academic expectations, which can create stress and emotional pressure that may lead to NSSI. Those in the middle position may perceive themselves as receiving less attention or recognition, potentially resulting in feelings of neglect and a higher likelihood of self-harm. Youngest siblings, on the other hand, may encounter excessive protection or limited independence, which can cause frustration and encourage maladaptive coping strategies.

In accordance with this result, the study in titled 'Sibling relationships of female adolescents with nonsuicidal self-injury disorder in comparison to a clinical and a nonclinical control group" by **Tschan et al., (2019)** illustrated that adolescents with NSSI report higher sibling rivalry and perceive more parental favoritism compared to their siblings without NSSI, which reflects family dynamics where the self-injuring

child dominates family attention. This rivalry and parental favoritism can contribute to maladaptive family functioning that maintains NSSI behaviors.

In contrary to the study, the study in titled "Birth orders effect on non-suicidal self-injury and perceived parental support" by **Kadric and Löfquist, (2018)** showed that birth order had no significant effect on NSSI or perceived parental support.

**Conclusion:**

More than one-fifth of the studied adolescents reported engaging in non-suicidal self-injury, with over half experiencing hand injuries. The findings revealed a statistically significant association between NSSI and adolescents' demographic characteristics.

**Recommendations**:

- Implement training programs for adolescents to increase awareness about NSSI, and early recognition of trials to enable timely intervention.
- Future research had needed to examine the long term effects of cases on their psychological health in adulthood.

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**AUTHOUR'S CONTRIBUTIONS**

M.H.M ; formed the thesis, explained, gathered data, wrote the original draft, she had a corresponding author.B.A.A.; contributed extensively participated in aim & research hypothesis, introduction, critical of the study review, discussion, conclusion, recommendations. B.A.A; reviewed, edited the manuscript, provided critical comments, did statistical data analysis, interpretation of data. H.H.A and N.A.H; took part in every stage of the research process, carried out the entire supervision, supplied the preliminary draft of the manuscript prior to its publication. The finished manuscript had revised, accepted by all authors.

**DECLARATION OF CONFLICTING INTERESTS**

No conflicts of interest had reported by the author**.**

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