



Analysis of Suicide and NSSI Data of Patients at Junjung Besaoh Hospital, South Bangka from September 2023 to July 2025

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KEYWORDS	ABSTRACT
<i>Suicide; NSSI; RSUD Junjung Besaoh; South Bangka</i>	This study aimed to understand the prevalence of suicide and non-suicidal self-injury (NSSI) in South Bangka Regency using a quantitative approach with a descriptive study design. Data were collected from electronic medical records at Junjung Besaoh Regional Hospital between September 2023 and July 2025. The results showed that the male-to-female suicide ratio was 1.14:1, with male suicides being more lethal. Suicides and NSSI were most common in adults (83.33%; 86.67%), with both unmarried and married individuals equally represented in suicide cases (50.00% each), while NSSI was more common in those without marital status (60.00%). Unemployed individuals (36.66%) were the most common group for suicide, while contract employees (40.00%) had higher rates of NSSI. Sharp objects and self-poisoning were the most common methods for suicide (43.33% each), while NSSI often involved barcodes (53.33%). Among suicide cases, 56.67% had a known psychiatric diagnosis, while 66.67% of NSSI cases had one. Relationship issues were the most common reason for both suicide (56.67%) and NSSI (66.67%). This study found an annual increase in cases and identified male gender, adulthood, and unemployment as risk factors for suicide. The findings aim to inform local governments and hospitals in planning suicide prevention and treatment programs.

INTRODUCTION

According to the WHO, the average global suicide rate was 8.9 per 100,000 population in 2021. Globally, the average murder rate in men is 2.2 times higher than in women. The suicide rate for men is 3.2 times higher than for women in high-income countries, 3.0 times higher in low-income countries. Most deaths by suicide occur in low- and middle-income countries, which are home to most of the world's population (World Health Organization, 2025).

The suicide rate in Indonesia is not well documented. The WHO estimates a low average suicide rate (2.6 in 100,000 population), but classifies it as low data quality. Based on an investigation by Onie et al, family and religion play an important role in the prevention and risk of suicide (Onie et al., 2022; Onie et al., 2024). Studies show that the highest average suicides come from rural areas, especially in the farming profession (Santos et al., 2021; Klingelschmidt et al., 2018).

South Bangka Regency has an area of 3,598.24 km². Based on its geographical position, the South Bangka Regency area is directly adjacent to other districts in the Bangka Belitung Islands Province, namely the Central Bangka Regency area in the North. To the west and south it is bordered by the Bangka Strait and the Java Sea, while to the east it is bordered by the Gaspa Strait. South Bangka Regency consists of 8 sub-districts, and 53 villages/sub-districts

(Badan Pusat Statistik Kabupaten Bangka Selatan, 2025; Badan Pusat Statistik Kabupaten Bangka Selatan, 2023).

South Bangka Regency concentrates on development in the mining, agriculture, plantation, marine fisheries, and trade sectors. In 2024, the rice harvest area will be 7,091 Ha with a total production of 30,977.18 tons. The harvest area of the field rice is 636.55 Ha and the total production is 880.15 tons. The area of oil palm plantations covers an area of 27,808 Ha. The area of rubber plantations is 17,160 Ha. The area of coconut plantations is 891 Ha. Meanwhile, the area of pepper plantations is 10,562.05.

The fisheries sub-sector (aquaculture and marine fisheries) is quite dominant in South Bangka Regency considering that the area bordering the sea has relatively large marine resources (Devi et al., 2019; Ksatrya, 2019; Oceans, 2019; Tanjung et al., 2021). The commodities produced have high economic value such as grouper, red snapper, shrimp, squid, shark fins and others (Badan Pusat Statistik Kabupaten Bangka Selatan, 2025; Badan Pusat Statistik Kabupaten Bangka Selatan, 2023).

Based on 2017 data, the percentage of professions in South Bangka is dominated by the agriculture, plantation, forestry, hunting, and fisheries sectors, which reached 49.06%. Meanwhile, the mining and quarrying sector also has an important role with a contribution of 15.18%. The processing industry sector contributed 4.64% (Badan Pusat Statistik Kabupaten Bangka Selatan, 2025; Badan Pusat Statistik Kabupaten Bangka Selatan, 2023). In 2024, the poverty rate in South Bangka Regency will increase to 3.74 percent from the previous 3.11 percent in 2023. Meanwhile, the number of poor people will increase to 8.10 thousand people in 2024 from the previous 6.66 thousand people in 2023 (Badan Pusat Statistik Kabupaten Bangka Selatan, 2025; Badan Pusat Statistik Kabupaten Bangka Selatan, 2023).

Research on suicide is still relatively small in Indonesia. Data on suicide in Indonesia are also not well documented (Liem et al., 2022; Nisa et al., 2020; Onie et al., 2023, 2024). In particular, in South Bangka Regency, the percentage of professions is dominated by the agriculture, plantation, forestry, hunting, and fisheries sectors. Studies by Santos et al show that the highest average suicides come from rural areas, especially in the farming profession. In addition, there is also an increase in the poverty rate in the latest data in 2024, compared to the previous one, which may be one of the factors. Family may also be one of the factors. Globally, the incidence of suicide in men is higher than in women, possibly due to stigma in the family and society.

The general purpose of this study is to find out the picture of suicide, and Non-Suicidal Self-Injury (NSSI) actions in South Bangka. The specific purpose of this study is to find out the risk factors of gender for suicide in South Bangka, and to find out the reasons for suicide in South Bangka. This research is expected to be useful for health workers and management of Junjung Besaoh Hospital in designing early prevention strategies, improving mental health screening, as well as developing more responsive and data-based clinical interventions and service policies. In addition, this research can also be a reference for local governments and health policy makers in formulating more targeted and sustainable mental health promotive-preventive programs in the South Bangka area.

METHOD

This research was a quantitative study with a descriptive design. The research material consisted of patients' electronic medical records from September 2023 to July 2025. This research was conducted at Junjung Besaoh Hospital, South Bangka Regency. Data were collected from these electronic medical records, with data from 2023 starting in September.

In this study, the population consisted of patients at South Bangka Hospital, both from the psychiatric polyclinic and the emergency room. The research sample comprised respondents who met the inclusion and exclusion criteria. The sampling method involved reviewing patients' electronic medical records from September 2023 to July 2025. Microsoft Excel 2021 was used for data tabulation. SPSS 29.0.2 was used for statistical data analysis and graphing of research results.

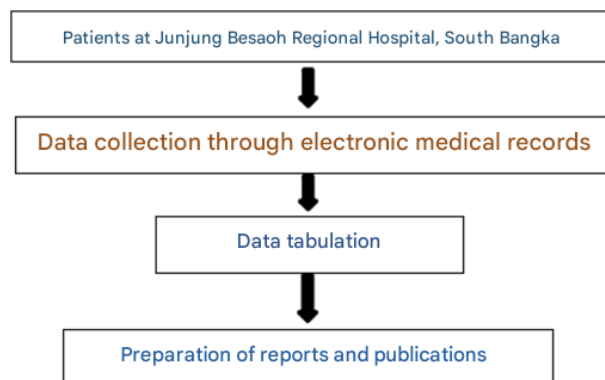


Fig 1. Research flow

RESULT AND DISCUSSION

The study found 45 cases of intentional self-harm from September 2023 to July 2025, with 15 cases of self-harm without suicidal intent (NSSI). Thus, there were 30 cases of suicide. Characteristics of suicide data in table 1.

Table 1. Demographic Data on Suicide

Variable	Remarks	Quantity	Percentage
Year	2023	4	13.33%
	2024	11	36.67%
	2025	15	50.00%
Gender	Male	16	53.33%
	Women	14	46.67%
Age	Children	1	3.33%
	Teenagers	2	6.67%
	Adult	25	83.33%
	Elderly	2	6.67%
Final Education	Medium Elementary School	1	3.33%
	SD	16	53.33%
	SMTP	4	13.33%

Variable	Remarks	Quantity	Percentage
	High School	7	23.33%
	D3	1	3.33%
	S1	1	3.33%
Marital Status	Unmarried	10	33.33%
	Widow/Widower	5	16.67%
	Married	15	50.00%
Jobs	Not working yet	11	36.67%
	IRT	6	20.00%
	Private	2	6.67%
	Day laborers	5	16.67%
	Fisherman	1	3.33%
	Farmer	4	13.33%
	Retirement	1	3.33%
Suicide Method	Poisons/drugs	13	43.33%
	Sharp objects	13	43.33%
	Drowning	1	3.33%
	Multiply: Sharp objects + Self-hanging	1	3.33%
	Hang yourself	2	6.67%
Known Psychiatric Diagnoses	Severe depression with psychotic symptoms	7	23.33%
	Severe depression without psychotic symptoms	2	6.67%
	Paranoid schizophrenia	5	16.67%
	Depression-type schizophrenic	1	3.33%
	GMO	1	3.33%
	MADD, BPD	1	3.33%
	Unknown	13	43.33%
Top Reasons for Suicide	Relationship problems	17	56.67%
	Economic problems	1	3.33%
	Economic issues + relations	3	10.00%
	Physical complaints	2	6.67%
	Psychotic	5	16.67%
	Criminal problems	1	3.33%
	Influence of substances	1	3.33%

By year, between 2023 and 2024, the percentage increase in cases is 175%. Meanwhile, between 2024 and 2025, the percentage increase in cases is 36.36%. Based on gender, 16 cases (53.33%) were male, 14 cases (46.67%) were female. The ratio of male to female sex is 1.14: 1. The most suicides were in adulthood, which was 25 cases (83.33%). The last education with the most is elementary school, which is 16 cases (53.33%). Based on marital status, 10 patients (33.33%) were unmarried, 15 patients (50.00%) were married, and 5 patients (16.67%) were divorced. A total of 11 people (36.67%) have not worked.

Based on the method, there were 1 case (3.33) of repeated suicide attempts, with sharp objects, and hanging themselves. The most common methods were self-poisoning (43.33%), and sharp objects (43.33%). Based on psychiatric diagnosis, 17 cases (56.67%) were known. The most psychiatric diagnosis was Major Depression without Psychotic Symptoms, which was 7 cases (23.33%). Based on the main reasons for suicide, the most were relationship

problems, namely 17 cases (56.67%). The study found 15 cases of intentional self-harm, without the intention to commit suicide (NSSI). The characteristics of NSSI data are listed in table 2.

Table 2. NSSI demographic data

Variable	Remarks	Quantity	Percentage
Year	2023	3	20.00%
	2024	5	33.33%
	2025	7	46.67%
Gender	Male	8	53.33%
	Women	7	46.67%
Age	Teenagers	2	13.33%
	Adult	13	86.67%
Education	No school	2	13.33%
	SD	2	13.33%
	Junior High School	1	6.67%
	High School	1	6.67%
	High School	4	26.67%
	D3	1	6.67%
	S1	4	26.67%
Marital status	Unmarried	8	53.33%
	Janda	1	6.67%
	Married	6	40.00%
Jobs	Not working yet	4	26.67%
	Contract employees	6	40.00%
	Day laborers	3	20.00%
	Farmer	1	6.67%
	Fisherman	1	6.67%
NSSI Method	Sharp objects (barcodes)	8	53.33%
	Hitting the glass	4	26.67%
	Hair pulling	1	6.67%
	KLL	1	6.67%
	Hitting the head	1	6.67%
Known psychiatric diagnoses	MADD, BPD	4	26.67%
	GAD, BPD	3	20.00%
	Bipolar, BPD	1	6.67%
	GMO	1	6.67%
	GAD	1	6.67%
	Unknown	5	33.33%
The main reasons for NSSI	Relationship problems	10	66.67%
	Economic issues + relations	2	13.33%
	GMO	1	6.67%
	Substance abuse	1	6.67%
	Chronic complaints	1	6.67%

Based on the year, between 2023 and 2024, the percentage increase in cases was 66.67%. Between 2024 and 2025, the percentage increase in cases is 40%. Based on gender, male NSSI

was 7 cases (46.67%). NSSI women were 8 cases (53.33%). The ratio of NSSI in males to females was 0.88: 1.

Based on age, NSSI was the most common in adults, which was 13 cases (86.67%). The most recent education is middle school, which is 4 people (26.67%), and the last education is S1, which is 4 people (26.67%). A total of 8 cases (53.33%) of NSSI are unmarried, 6 cases (40.00%) are married. As many as 1 case (6.67%) has been divorced, with widow status. A total of 4 people (26.67%) have not worked, with the most jobs being contract employees, namely 6 people (40.00%). The most NSSI method was with a sharp object "barcode" in 8 cases (53.33%).

Based on psychiatric diagnoses in NSSI cases, the most common diagnoses are Mixed Anxiety Disorder with Depression and Threshold Personality Disorder, which is 4 cases (26.67%). A total of 5 cases (33.33%) without a psychiatric diagnosis are known. The main reason for NSSI is relationship problems, which are 10 cases (66.67%). The suicide ratio of males to females is 1.14:1. A total of 1 case of complete suicide in men. Barabanschikov's 2021 study with 83 audio-video clips of 14 emotional states, showed that women are more aware of emotional dynamics.

Epigenetic factors related to maternal behavior, history of physical and sexual violence. Acute and chronic stressors affect the hypothalamic-pituitary axis (HPA). The paraventricular nucleus of the hypothalamus releases corticotropin-releasing factor (CRF) and arginine vasopressin (AVP), stimulates the anterior pituitary, secretes adrenocorticotrophic hormone (ACTH), triggers cortisol synthesis, affects the serotonergic system. This disorder is seen in suicide (Berardelli et al., 2020).

Higher ventromedial prefrontal cortex response was associated with poorer stress regulation, and lower stress reactivity in males. The hippocampus-triggered response is more adaptive stress in women. Women have a larger volume of gray-matter of the singulata cortex (limbic stem part), with stronger activation emotionally (Goldfarb et al., 2019; Wager et al., 2003).

Serotonin is involved in mood regulation, more in women, as it is related to estrogen. Women have higher expression of 5-HT1A receptors in cortical and subcortical, but serotonin synthesis is 52% faster in men. Cortisol is released according to the circadian rhythm. Cortisol imbalance plays a role in mental problems. Women experience hormonal changes during life, at risk of mental problems (Teo et al., 2023; Kim & Lee, 2024).

According to the Psychodynamic Theory by Freud, the mind comes from the body, the ego originally comes from the sensations of the body. Suicide and self-harm can be seen as forms of the subconscious, symbolizing the desire to gain control over the perpetrators of violence; However, the "perpetrator" is now a part of him. There are 5 stages in the suicide path according to Hale (Gibbons, 2024; Yakeley & Burbridge-James, 2018).

Stage 1 (pre-suicidal vulnerability), there are painful emotions that are not processed, so they are unable to process grief. Men culturally suppress feelings, are more likely to die by suicide. Stage 2 (the first trigger loss event), ego separation can go undetected until facing a major loss that necessitates mourning. The separate part of the superego performs destructive

actions, so there is a desire to eliminate the source of pain and gain relief. Stage 3 (pre-suicide) where suicidal fantasies dominate mental life, death is considered the solution to the problem. Stage 4 (the last triggering event) may not be significant, but it is considered a permission for a suicidal act. Stage 5 is Confusion and dissociation, characterized by the dissociation of the affirmative aspects of life.

Shneidman's theory focuses on individual factors, psychological and emotional pain with unbearable intensity. Men commit suicide more often, because they act impulsively more often, while women are limited by patriarchal culture. It seems that suicide is an acting-out behavior, expressing emotions or subconscious conflicts through action (Shneidman, 1998).

Durkheim argued that too little social integration increases the risk of suicide, because it has no connection to something beyond the self. Interpersonal theory explains the relationship between interpersonal relationships and suicide, assuming that people commit suicide because they can and want to. There are 3 important factors, related to suicidal thoughts (inhibition of possession, perceived burden), and ability to commit suicide.

Family conflicts, mental problems, a history of suicide attempts, physical illness, social isolation, and economics are all risk factors for suicide. According to this study, most cases occur in people who have not yet worked. The main reason for suicide and NSSI is relationship problems, explained by Interpersonal Theory (Van Orden et al., 2010).

Based on Interpersonal Theory, humans need frequent, affectively pleasurable, and positive interactions with the same individual, in the form of stable long-term care and attention. The component of thwarted belongingness is loneliness and the absence of caring relationships. Chronic loneliness is associated with anxiety, anger, pessimism, negative self-evaluation, shame, and low levels of social support (Van Orden et al., 2010).

The burden felt includes the belief that the self has shortcomings so that it becomes a burden, and hatred towards the self. Lethal suicide requires the loss of fear, and an increase in pain tolerance. This is due to habituation, in response to repeated exposures to physical pain and/or frightening experiences. For the idea to be an act of suicide, suicidal desires must be present, with a decrease in fear of death.¹⁹ Initially, self-injury was method-specific, as it had different "pains", explaining the reason method substitution was rare. Recurrent suicidal behavior forms physiological habituation to physical pain, and cognitive assessment of pain tolerance. Cognitive judgment must not be ambivalent for lethal suicide to occur.

Availability contributes to suicidal acts. Where in South Bangka, agriculture as the largest industrial sector, is evidenced by the method of poisoning themselves with pesticides. Interpersonal and Opponent Process Theory explain the reasons for common recurrent suicides (Badan Pusat Statistik Kabupaten Bangka Selatan, 2023; Van Orden et al., 2010; Solomon & Corbit, 1974). The Opponent Process theory explains that emotional responses are the amalgamation of two opposite processes. With repeated exposure, although the primary process (fear of pain) may be stable, the emotional affectation of the opposite process (sense of relief) is magnified, which manifests as habituation. So there seems to be a decrease in fear (Barabanschikov & Suvorova, 2021).

CONCLUSION

This study revealed a consistent annual increase in suicide and non-suicidal self-injury (NSSI) cases in South Bangka Regency from September 2023 to July 2025, highlighting escalating mental health challenges that demand urgent attention. Suicides were most prevalent among adults, with males showing higher rates and lethality than females; unemployment emerged as a key risk factor amid the region's informal economy, while interpersonal relationship problems dominated triggers for both suicide and NSSI, regardless of psychiatric diagnosis—aligning with interpersonal theory's emphasis on psychosocial factors like social connectedness and family support. Overall, these multifactorial findings, shaped by demographics, socioeconomics, mental health, and relationships, provide a foundation for targeted screening, prevention, and interventions at hospital and local government levels. For future research, longitudinal prospective studies incorporating community-based surveys and qualitative interviews could explore causal pathways of these risk factors and evaluate intervention efficacy in reducing trends.

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