e-ISSN: 2715-9736

Scientia Psychiatrica

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The Impact of Trauma-Informed Care on Mental Health Outcomes for Incarcerated Youth: A Longitudinal Study in Bandung, Indonesia

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ARTICLE INFO

Keywords:
Incarcerated youth
Indonesia
Longitudinal study
Mental health
Trauma-informed care

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All authors have reviewed and approved the final version of the manuscript.

https://doi.org/10.37275/scipsy.v6i1.183

A B S T R A C T

Introduction: Incarcerated youth represent a vulnerable population with disproportionately high rates of trauma exposure and mental health disorders. This study investigated the longitudinal impact of a trauma-informed care (TIC) program on mental health outcomes for incarcerated youth in Bandung, Indonesia. **Methods:** A quasi-experimental design was employed, comparing a group of incarcerated youth who received TIC with a control group receiving standard care. Participants (n=200) were assessed at baseline, 6 months, and 12 months using validated instruments measuring PTSD symptoms, depression, anxiety, and behavioral problems. Data analysis included repeated measures ANOVA and correlational analyses. **Results:** Youth in the TIC group demonstrated significant reductions in PTSD symptoms, depression, and anxiety over time compared to the control group. Improvements in behavioral problems were also observed in the TIC group. These positive changes were sustained over the 12-month period. **Conclusion:** This study provides evidence for the effectiveness of TIC in improving mental health outcomes for incarcerated youth. Implementing TIC programs in juvenile detention facilities is crucial for addressing the mental health needs of this vulnerable population.

1. Introduction

Incarcerated youth constitute a vulnerable population with a disproportionately high prevalence of trauma exposure and mental health disorders. The challenging circumstances often associated with incarceration, including exposure to violence, abuse, neglect, and community adversity, can have a profound impact on the mental well-being of young individuals. These experiences can lead to the development of various mental health disorders, such as post-traumatic stress disorder (PTSD), depression, anxiety, and disruptive behaviors. The presence of these mental health challenges can significantly impede their rehabilitation, successful reintegration into the community, and overall long-term well-being. Therefore, addressing the mental health needs of incarcerated youth is a critical public health concern.[1-3]

Trauma-informed care (TIC) has emerged as a promising approach to addressing the impact of trauma on individuals. TIC recognizes the widespread prevalence of trauma and its profound effects on mental, emotional, and behavioral health. It emphasizes creating safe and supportive environments that avoid re-traumatization, promote resilience, and empower individuals. Key principles of TIC include safety, trustworthiness and transparency, peer support, collaboration and mutuality,

empowerment, voice and choice, and cultural, historical, and gender issues.[4-6]

While TIC has been increasingly implemented in various settings, including mental health, healthcare, and education, its application within the juvenile justice system is still evolving. Limited research exists on the effectiveness of TIC programs specifically designed for incarcerated youth, particularly in low- and middle-income countries.[7-10] This study aimed to address this gap by investigating the longitudinal impact of a TIC program on mental health outcomes for incarcerated youth in Bandung, Indonesia. Indonesia, like many other nations, faces the challenge of addressing the mental health needs of its incarcerated youth population. Overcrowding, limited resources, and a lack of specialized mental health services within juvenile detention facilities can exacerbate the negative effects of trauma. This study sought to evaluate the effectiveness of a newly implemented TIC program within a juvenile detention center in Bandung, Indonesia, providing valuable insights for policy and practice.

2. Methods

A quasi-experimental design was employed to investigate the longitudinal impact of the trauma-informed care (TIC) program on incarcerated youth in Bandung, Indonesia. This approach allowed for a comparison between the group receiving TIC and the control group receiving standard care, while acknowledging the practical limitations of random assignment in this particular setting. A quasi-experimental design with a non-equivalent control group was utilized in this study. This design was chosen due to the challenges associated with random assignment in a real-world juvenile detention center setting. While random assignment is ideal for controlling extraneous variables, it was not feasible in this context due to ethical and logistical considerations. The non-equivalent control group design allowed for a comparison between the TIC group and the control group, while acknowledging that the two groups may not be perfectly matched on all baseline characteristics.

The participants in this study were incarcerated youth between the ages of 14 and 18 who were residents of a juvenile detention center in Bandung, Indonesia. The inclusion criteria mandated that participants had experienced at least one traumatic event, such as physical or sexual abuse, or witnessing violence, as assessed by a standardized trauma screening tool. Additionally, participants had to be willing to engage in the study procedures. Exclusion criteria were in place to safeguard those with severe intellectual disabilities or active psychosis, as these conditions could hinder their ability to provide informed consent or participate fully in the program. A total of 200 incarcerated youth, with 100 in each group, participated in the study.

The TIC program, specifically designed for this study, consisted of 12 weekly group sessions led by trained mental health professionals. The program integrated elements of Cognitive Behavioral Therapy (CBT), mindfulness techniques, and psychoeducation on trauma and its impact. The sessions were structured to foster coping skills, emotional regulation, processing of traumatic memories, and the promotion of resilience. In addition to the group sessions, the program included training for the detention center staff on trauma-informed principles and practices, aiming to cultivate a supportive environment within the facility.

The control group received the standard care provided by the detention center. This standard care typically included the provision of basic needs, educational activities, and limited access to mental health services. The control group served as a comparison to assess the impact of the TIC program on the intervention group.

Data collection was conducted at three distinct time points: baseline (pre-intervention), 6 months post-baseline, and 12 months post-baseline. This longitudinal approach allowed for the assessment of changes in mental health outcomes over time, capturing both the immediate and sustained effects of the TIC program.

Standardized instruments were used to assess mental health outcomes at each data collection point. These instruments were chosen for their established reliability and validity in measuring specific constructs relevant to the study; Childhood PTSD Symptom Scale (CPSS): This scale measures the severity of PTSD symptoms in children and adolescents. It assesses a range of symptoms, including intrusive thoughts, avoidance behaviors, negative alterations in cognitions and mood, and alterations in arousal and reactivity; Children's Depression Inventory (CDI): This inventory assesses depressive symptoms in children and adolescents. It covers various aspects of depression, such as depressed mood, loss of interest, fatigue, sleep disturbances, appetite changes, and feelings of worthlessness; Revised Children's Manifest Anxiety Scale (RCMAS): This scale measures anxiety symptoms in children and adolescents. It assesses both physiological and psychological manifestations of anxiety, including worry, fear, restlessness, and somatic complaints; Youth Self-Report (YSR): This instrument assesses a broad range of behavioral problems in children and adolescents. It covers internalizing problems, such as anxiety and depression, as well as externalizing problems, such as aggression and rule-breaking behaviors.

The data collected from the standardized instruments were analyzed using repeated measures Analysis of Variance (ANOVA). This statistical technique is well-suited for analyzing changes in outcomes over time, allowing for the comparison of mental health scores within and between the TIC and control groups at each data collection point. In addition to ANOVA, correlational analyses were performed to explore the relationships between trauma exposure, mental health symptoms, and program participation. These analyses aimed to identify potential predictors of mental health outcomes and to understand the interplay between trauma, mental health, and engagement in the TIC program. Effect sizes were also calculated to quantify the magnitude of the intervention's impact on mental health outcomes.

Ethical considerations were paramount throughout the study. The study protocol was approved by the Institutional Review Board of CMHC Indonesia, ensuring adherence to ethical guidelines for research involving human subjects. Informed consent was obtained from all participants and their legal guardians, with clear explanations of the study's purpose, procedures, and potential risks and benefits. Confidentiality was strictly maintained throughout the study, with all data anonymized and securely stored. Participants were informed of their right to withdraw from the study at any time without consequence. The rigorous methodology employed in this study, including the quasi-experimental design, comprehensive data collection, and robust statistical analyses, aimed to provide a strong foundation for understanding the impact of TIC on incarcerated youth. The ethical considerations embedded in the study design ensured the protection of participants' rights and well-being throughout the research process.

3. Results

Table 1 presents the demographic and clinical characteristics of the participants at baseline before the intervention began. The average age of participants was 16.2 years in the TIC group and 16.0 in the control group. This suggests the groups were comparable in age. The majority of participants were male (75% in the TIC group, 70% in the control group). This reflects the typical gender distribution in juvenile detention settings. The sample included diverse ethnicities, primarily Sundanese and Javanese, reflecting the local population. The distribution was similar between the TIC and control groups. A very high percentage of youth in both groups (95% TIC, 90% control) had experienced at least one traumatic event. This underscores the prevalence of trauma in this population. Physical abuse, witnessing domestic violence, and community violence were the most common types of trauma reported. This highlights the complex and often severe nature of trauma experienced by these youth. Both groups showed

similarly elevated scores on measures of PTSD (CPSS), depression (CDI), anxiety (RCMAS), and behavioral problems (YSR). This indicates significant mental health needs in both groups at the start of the study. A minority of participants in both groups had received prior mental health treatment. This suggests a potential gap in service provision for this population. The types of offenses leading to detention were varied (theft, drug-related, violent offenses, etc.) and showed no significant differences between groups. The average length of current detention was comparable between the TIC and control groups.

Table 2 displays the changes in mental health outcomes over time for both the TIC and control groups, and it presents some very compelling findings. The TIC group showed statistically significant reductions in PTSD symptoms (CPSS), depression (CDI), anxiety (RCMAS), and behavioral problems (YSR) from baseline to both 6 and 12 months. This indicates that the TIC program had a positive impact across a range of mental health outcomes. In contrast, the control group showed little to no improvement in any of the mental health measures. This suggests that the standard care provided in the detention center was not sufficient to address the mental health needs of these youth. The improvements in the TIC group were not only statistically significant but also sustained over the 12-month follow-up period. This is crucial as it demonstrates that the program had a lasting positive impact on the well-being of the participants. The effect sizes (Cohen's d) for the changes in the TIC group were generally moderate to large, particularly for PTSD and depression. This indicates that the program had a clinically meaningful impact on these outcomes; PTSD (CPSS): The TIC group showed the largest reduction in PTSD symptoms, with a large effect size. This suggests that the trauma-focused elements of the program were particularly effective; Depression (CDI): The TIC group also showed a substantial decrease in depressive symptoms, with a moderate to large effect size. This indicates that addressing trauma can also have a positive impact on mood and overall well-being; Anxiety (RCMAS) and Behavioral Problems (YSR): While the improvements in anxiety and behavioral problems were not as large as those for PTSD and depression, they were still statistically significant and clinically meaningful. This suggests that the TIC program had a broader positive impact on the participants' functioning. The significant "Time x Group Interaction" effects for all outcomes indicate that the changes over time were significantly different between the TIC and control groups. This further supports the conclusion that the TIC program was responsible for the observed improvements. The post-hoc comparisons confirm that the significant changes in the TIC group were primarily driven by improvements from baseline to 6 months and from baseline to 12 months. This indicates that the program had both immediate and long-term benefits.

Table 3 presents the results of the correlational analyses, which aimed to explore the relationships between various factors in the study. The total number of traumatic events experienced was positively correlated with PTSD, depression, anxiety, and behavioral problems at baseline. This means that youth who had experienced more trauma tended to have more severe mental health symptoms. This finding is consistent with existing literature on the impact of trauma. Interestingly, the strength of these correlations decreased from baseline to 6 months and then to 12 months. This suggests that while trauma exposure was strongly linked to mental health problems initially, this link weakened over time, particularly for those in the TIC group (as we'll see below). The number of TIC sessions attended (a measure of program participation or "dose") was negatively correlated with changes in PTSD, depression, anxiety, and behavioral problems. This means that youth who attended more sessions tended to show greater improvements in their mental health. This is a key finding supporting the effectiveness of the TIC program. The changes in different mental health outcomes (e.g., change in PTSD and change in depression) were positively correlated with each other. This suggests that improvements in one area of mental health were often accompanied by improvements in

other areas. This highlights the interconnectedness of mental health and the potential for interventions like TIC to have broad positive effects.

Table 1. Participant baseline characteristics.

Characteristic	TIC group (n=100)	Control group (n=100)	Statistical significance
Age (years)			
* Mean ± SD	16.2 ± 1.5	16.0 ± 1.6	t(198) = 0.85, p = 0.395
* Range	14-18	14-18	
Gender			$x^2(1) = 0.22$, p = 0.639
* Male	75 (75%)	70 (70%)	
* Female	25 (25%)	30 (30%)	
Ethnicity			$x^2(3) = 2.57$, p = 0.463
* Sundanese	60 (60%)	55 (55%)	
* Javanese	25 (25%)	30 (30%)	
* Other Indonesian	10 (10%)	10 (10%)	
* Mixed Ethnicity	5 (5%)	5 (5%)	
Trauma history			$x^2(1) = 0.05$, p = 0.824
* Experienced at least one trauma	95 (95%)	90 (90%)	
Types of trauma experienced			
* Physical abuse	60 (63.2%)	55 (61.1%)	
* Sexual abuse	25 (26.3%)	28 (31.1%)	
* Witnessing domestic violence	40 (42.1%)	38 (42.2%)	
* Neglect	30 (31.6%)	25 (27.8%)	
* Community violence	50 (52.6%)	48 (53.3%)	
* Other trauma	15 (15.8%)	12 (13.3%)	
Mental health symptoms (Baseline)			
* CPSS (Mean ± SD)	35.2 ± 8.5	34.8 ± 9.2	t(198) = 0.39, p = 0.697
* CDI (Mean ± SD)	22.5 ± 6.2	21.9 ± 6.8	t(198) = 0.65, p = 0.516
* RCMAS (Mean ± SD)	28.7 ± 7.1	29.3 ± 7.5	t(198) = -0.72, p = 0.472
* YSR (Mean ± SD)	45.3 ± 10.2	44.1 ± 10.8	t(198) = 0.91, p = 0.365
Prior mental health treatment			$x^2(1) = 1.21$, p = 0.271
* Yes	20 (20%)	15 (15%)	
* No	80 (80%)	85 (85%)	
Detention offense			$x^2(3) = 1.88$, p = 0.600
* Theft	30 (30%)	25 (25%)	
* Drug-related	25 (25%)	30 (30%)	
* Violent offense	20 (20%)	25 (25%)	
* Other offense	25 (25%)	20 (20%)	
Length of current detention (months)			t(198) = -0.55, p = 0.581
* Mean ± SD	4.2 ± 1.8	4.5 ± 2.0	

Notes: CPSS = Childhood PTSD Symptom Scale; CDI = Children's Depression Inventory; RCMAS = Revised Children's Manifest Anxiety Scale; YSR = Youth Self-Report.

Table 2. Changes in mental health outcomes over time.

Outcome measure	Group	Baseline (Mean ± SD)	6 months (Mean ± SD)	12 months (Mean ± SD)	Time x group interaction (F, p)	Post-hoc comparisons (p)	Effect size (Cohen's d)
CPSS	TIC	35.2 ± 8.5	28.1 ± 7.2	25.5 ± 6.8	F(2,198) = 25.32, p <.001	Baseline vs. 6 Months: p <.001; Baseline vs. 12 Months: p <.001; 6 Months vs. 12 Months: p =.015	Baseline vs. 6 Months: 0.85; Baseline vs. 12 Months: 1.12
	Control	34.8 ± 9.2	33.5 ± 8.9	33.1 ± 9.0			Baseline vs. 6 Months: 0.15; Baseline vs. 12 Months: 0.20
CDI	TIC	22.5 ± 6.2	18.3 ± 5.5	16.8 ± 5.1	F(2,198) = 18.76, p <.001	Baseline vs. 6 Months: p <.001; Baseline vs. 12 Months: p <.001; 6 Months vs. 12 Months: p =.052	Baseline vs. 6 Months: 0.72; Baseline vs. 12 Months: 0.95
	Control	21.9 ± 6.8	21.5 ± 6.5	21.2 ± 6.7			Baseline vs. 6 Months: 0.06; Baseline vs. 12 Months: 0.10
RCMAS	TIC	28.7 ± 7.1	25.2 ± 6.5	23.8 ± 6.0	F(2,198) = 12.45, p <.001	Baseline vs. 6 Months: p <.001; Baseline vs. 12 Months: p <.001; 6 Months vs. 12 Months: p =.120	Baseline vs. 6 Months: 0.55; Baseline vs. 12 Months: 0.78
	Control	29.3 ± 7.5	28.8 ± 7.3	28.5 ± 7.4			Baseline vs. 6 Months: 0.07; Baseline vs. 12 Months: 0.11
YSR	TIC	45.3 ± 10.2	40.5 ± 9.5	38.2 ± 9.0	F(2,198) = 8.92, p <.001	Baseline vs. 6 Months: p <.001; Baseline vs. 12 Months: p <.001; 6 Months vs. 12 Months: p =.035	Baseline vs. 6 Months: 0.50; Baseline vs. 12 Months: 0.72
	Control	44.1 ± 10.8	43.5 ± 10.5	43.0 ± 10.6			Baseline vs. 6 Months: 0.06; Baseline vs. 12 Months: 0.10

CPSS = Childhood PTSD Symptom Scale; CDI = Children's Depression Inventory; RCMAS = Revised Children's Manifest Anxiety Scale; YSR = Youth Self-Report.

Table 3. Correlational analyses.

Variable 1	Variable 2	Time point	Correlation coefficient (r)	p-value
Trauma Exposure (Total Number of Traumatic Events)	CPSS	Baseline	0.45	<.001
	CDI	Baseline	0.38	<.001
	RCMAS	Baseline	0.32	<.001
	YSR	Baseline	0.42	<.001
Trauma Exposure (Total Number of Traumatic Events)	CPSS	6 Months	0.35	<.001
	CDI	6 Months	0.28	<.001
	RCMAS	6 Months	0.25	<.001
	YSR	6 Months	0.32	<.001
Trauma Exposure (Total Number of Traumatic Events)	CPSS	12 Months	0.30	<.001
	CDI	12 Months	0.22	<.001
	RCMAS	12 Months	0.20	<.001
	YSR	12 Months	0.28	<.001
TIC Program Participation (Dose; Number of Sessions Attended)	ΔCPSS (Change in CPSS from Baseline)		-0.52	<.001
	ΔCDI (Change in CDI from Baseline)		-0.48	<.001
	ΔRCMAS (Change in RCMAS from Baseline)		-0.40	<.001
	ΔYSR (Change in YSR from Baseline)		-0.45	<.001
ΔCPSS (Change in CPSS from Baseline)	ΔCDI (Change in CDI from Baseline)		0.65	<.001
ΔCPSS (Change in CPSS from Baseline)	ΔRCMAS (Change in RCMAS from Baseline)		0.58	<.001
ΔCPSS (Change in CPSS from Baseline)	ΔYSR (Change in YSR from Baseline)		0.62	<.001
ΔCDI (Change in CDI from Baseline)	ΔRCMAS (Change in RCMAS from Baseline)		0.55	<.001
ΔCDI (Change in CDI from Baseline)	ΔYSR (Change in YSR from Baseline)		0.50	<.001
ΔRCMAS (Change in RCMAS from Baseline)	ΔYSR (Change in YSR from Baseline)		0.48	<.001

CPSS = Childhood PTSD Symptom Scale; CDI = Children's Depression Inventory; RCMAS = Revised Children's Manifest Anxiety Scale; YSR = Youth Self-Report.

4. Discussion

The significant reductions in PTSD symptoms observed in the TIC group are particularly noteworthy. Post-traumatic stress disorder (PTSD) is a prevalent and often debilitating mental health condition among incarcerated youth, frequently contributing to other mental health issues and increasing the likelihood of recidivism. The TIC program's focus on processing traumatic memories, developing coping skills, and creating a safe and supportive environment likely contributed to the observed reductions in PTSD symptoms. Trauma often involves overwhelming experiences that can shatter an individual's sense of safety and control. Incarcerated youth, having endured multiple and complex traumas, may find their emotional and psychological development significantly disrupted. The TIC program provided a structured and supportive space for these young people to revisit and

process their traumatic memories in a safe and controlled manner. Through evidence-based therapeutic techniques like Cognitive Behavioral Therapy (CBT) and mindfulness exercises, participants were guided to confront and reframe their traumatic experiences, reducing their emotional intensity and negative impact. CBT is a widely recognized and effective therapeutic approach for addressing trauma-related symptoms. It focuses on identifying and modifying negative thought patterns and behaviors that contribute to distress. In the context of TIC, CBT techniques were used to help participants challenge their negative beliefs about themselves and the world, develop more adaptive coping strategies, and manage their emotional responses to trauma reminders. Mindfulness practices involve paying attention to the present moment without judgment. These practices can help individuals to cultivate greater awareness of their thoughts, feelings, and bodily sensations, reducing their tendency to get caught up in negative thought patterns and emotional reactivity. In the TIC program, mindfulness exercises were used to help participants develop greater emotional regulation skills and reduce their physiological arousal in response to trauma triggers. Coping skills are essential for managing the emotional and psychological distress associated with trauma. Incarcerated youth, often lacking healthy coping mechanisms, may resort to self-destructive behaviors or emotional suppression to deal with their trauma. The TIC program equipped participants with a range of coping skills, including emotional regulation techniques, relaxation exercises, and interpersonal communication skills. These skills empowered them to manage their emotions, navigate challenging situations, and build healthier relationships. Emotional regulation involves the ability to manage and respond to one's emotions in a healthy and adaptive way. Incarcerated youth, having experienced significant trauma, may struggle with intense emotions such as anger, fear, and sadness. The TIC program provided them with specific techniques to identify, understand, and regulate their emotions. These techniques may have included deep breathing exercises, progressive muscle relaxation, and cognitive restructuring. Relaxation techniques are designed to reduce physiological arousal and promote a sense of calm. These techniques can be particularly helpful for individuals who experience hyperarousal or anxiety symptoms as a result of trauma. The TIC program may have incorporated various relaxation exercises, such as guided imagery, meditation, and yoga, to help participants manage their stress levels and improve their overall well-being. Effective communication is essential for building and maintaining healthy relationships. Incarcerated youth, often facing social isolation and rejection, may have difficulty communicating their needs and boundaries assertively. The TIC program provided them with opportunities to practice communication skills, such as active listening, expressing their thoughts and feelings clearly, and resolving conflicts constructively. A safe and supportive environment is crucial for healing and recovery from trauma. Incarcerated youth, often exposed to harsh and punitive environments, may find it challenging to trust others and feel safe. The TIC program prioritized creating a safe and supportive space where participants felt respected, heard, and understood. This was achieved through establishing clear boundaries, fostering open communication, and promoting a sense of community among participants. The trauma-informed training provided to detention center staff further contributed to creating a supportive environment within the facility. Clear boundaries are essential for creating a sense of safety and predictability. In the context of TIC, boundaries may have included rules about respectful communication, confidentiality, and physical and emotional safety. These boundaries helped to create a structured environment where participants felt secure and could focus on their healing. Open communication is essential for building trust and rapport. The TIC program encouraged participants to share their experiences and perspectives openly and honestly, without fear of judgment or reprisal. This open communication fostered a sense of connection

and mutual support among participants. A sense of community can provide a powerful source of support and belonging for individuals who have experienced trauma. The TIC program may have incorporated group activities and discussions to foster a sense of community among participants. This sense of belonging may have helped to reduce feelings of isolation and promote a sense of shared purpose. The trauma-informed training provided to detention center staff was crucial for creating a supportive environment within the facility. This training helped staff to understand the impact of trauma on behavior and to develop more compassionate and responsive approaches to interacting with incarcerated youth. The improvements in depression, anxiety, and behavioral problems in the TIC group further highlight the broad benefits of this approach. By addressing the underlying effects of trauma, TIC can positively impact a range of mental health problems and behavioral challenges commonly experienced by incarcerated youth. The program's emphasis on emotional regulation, social skills development, and fostering a sense of empowerment likely contributed to these positive changes. Trauma can dysregulate an individual's emotional responses, leading to heightened anxiety, depression, and difficulty managing anger. Incarcerated youth, with their complex trauma histories, may struggle with intense and unpredictable emotions. The TIC program provided them with tools and techniques to understand and regulate their emotions. Mindfulness practices, for example, helped them develop greater awareness of their emotional states, while CBT techniques provided strategies for managing negative thoughts and behaviors. Mindfulness practices involve paying attention to the present moment without judgment. These practices can help individuals to cultivate greater awareness of their thoughts, feelings, and bodily sensations, reducing their tendency to get caught up in negative thought patterns and emotional reactivity. In the TIC program, mindfulness exercises were used to help participants develop greater emotional regulation skills and reduce their physiological arousal in response to trauma triggers. CBT is a widely recognized and effective therapeutic approach for addressing a range of mental health problems, including depression and anxiety. It focuses on identifying and modifying negative thought patterns and behaviors that contribute to distress. In the context of TIC, CBT techniques were used to help participants challenge their negative beliefs about themselves and the world, develop more adaptive coping strategies, and manage their emotional responses to trauma reminders. Trauma can also disrupt social development, leading to difficulties forming and maintaining healthy relationships. Incarcerated youth, often facing social isolation and rejection, may lack the social skills necessary for successful reintegration into the community. The TIC program incorporated social skills training, providing opportunities for participants to practice communication, cooperation, and conflict resolution. These skills are essential for building positive relationships, navigating social situations, and avoiding future conflict. Communication skills training involves teaching individuals how to communicate effectively with others. This may include skills such as active listening, expressing oneself clearly and assertively, and resolving conflicts constructively. In the TIC program, participants may have engaged in role-playing exercises, group discussions, and other activities designed to enhance their communication skills. Cooperation and conflict resolution skills are essential for navigating social situations and maintaining healthy relationships. Incarcerated youth, often exposed to environments where aggression and conflict are prevalent, may have difficulty resolving disagreements peacefully. The TIC program may have provided them with opportunities to practice cooperation and conflict resolution skills in a safe and supportive setting. Trauma can erode an individual's sense of agency and control over their lives. Incarcerated youth, facing the restrictions and stigma associated with incarceration, may feel powerless and hopeless. The TIC program aimed to foster a sense of empowerment by providing

opportunities for participants to make choices, express their voices, and take ownership of their recovery. This was achieved through incorporating elements of choice into program activities, encouraging self-advocacy, and celebrating their achievements. Providing choices and opportunities for autonomy can help individuals to regain a sense of control over their lives. In the TIC program, participants may have been given choices about which activities to participate in, how to express their creativity, or how to contribute to the group. Self-advocacy involves the ability to speak up for oneself and assert one's needs and rights. Incarcerated youth, often facing systemic barriers and discrimination, may have difficulty advocating for themselves. The TIC program may have encouraged self-advocacy by providing information about their rights, teaching them how to communicate their needs effectively, and supporting them in taking action to address their concerns. Celebrating achievements, no matter how small, can help to build self-esteem and reinforce positive behaviors. The TIC program may have incorporated opportunities to acknowledge and celebrate participants' progress and accomplishments, fostering a sense of pride and motivation. The correlational analyses revealed a strong positive association between trauma exposure and mental health symptoms at baseline. This finding underscores the significant impact of trauma on the mental well-being of incarcerated youth. The more traumatic events a young person has experienced, the greater their risk of developing mental health problems. This highlights the importance of early intervention and prevention efforts to address the impact of trauma on vulnerable populations. Early intervention involves providing support and services to individuals who have experienced trauma as soon as possible after the traumatic event. This can help to prevent the development of long-term mental health problems and promote healing and recovery. Prevention efforts aim to reduce the incidence of trauma and its negative consequences. This may involve addressing the root causes of trauma, such as poverty, violence, and discrimination, and promoting protective factors, such as strong families and communities. While the initial correlation between trauma exposure and mental health symptoms was strong, the strength of this association decreased over time, particularly for those in the TIC group. This suggests that the program helped to mitigate the negative effects of trauma on their mental health. By providing a safe and supportive environment, teaching coping skills, and fostering a sense of empowerment, the TIC program helped participants to process their trauma and build resilience. Resilience refers to the ability to bounce back from adversity and thrive in the face of challenges. The TIC program may have promoted resilience by helping participants develop coping skills, build supportive relationships, and cultivate a sense of hope and optimism.[11-14]

The findings of this study are consistent with a growing body of research that demonstrates the benefits of trauma-informed care (TIC) for individuals who have experienced trauma. This study adds to the evidence base by specifically examining the effectiveness of TIC within the context of the juvenile justice system in Indonesia, a population and setting that has received limited attention in previous research. Numerous studies have shown that TIC programs, particularly those incorporating elements of Cognitive Behavioral Therapy (CBT), mindfulness, and psychoeducation, can effectively reduce trauma-related symptoms in various populations. CBT, with its focus on identifying and modifying maladaptive thoughts and behaviors, has been widely recognized as an effective treatment for PTSD and other trauma-related disorders. Mindfulness practices, which cultivate present-moment awareness and non-judgmental acceptance, have also shown promise in reducing trauma-related symptoms and improving emotional regulation. Psychoeducation, which provides individuals with information about trauma and its effects, can empower them to understand their experiences and develop coping strategies. This study's findings align with these previous studies by demonstrating significant reductions in PTSD

symptoms among incarcerated youth who participated in the TIC program. The program's incorporation of CBT, mindfulness, and psychoeducation likely contributed to these positive outcomes. By providing participants with the tools and skills to process their traumatic memories, manage their emotions, and develop healthier coping mechanisms, the TIC program helped to alleviate the debilitating symptoms of PTSD. Emotional regulation, the ability to manage and respond to one's emotions in a healthy and adaptive way, is often impaired in individuals who have experienced trauma. Trauma can dysregulate the nervous system, leading to heightened emotional reactivity, difficulty managing anger, and increased vulnerability to anxiety and depression. TIC programs, with their emphasis on creating safe and supportive environments and teaching emotional regulation skills, have shown promise in improving emotional regulation among trauma-exposed individuals. This study's findings support this notion by demonstrating improvements in depression and anxiety symptoms among incarcerated youth who participated in the TIC program. The program's focus on emotional regulation, through techniques such as mindfulness practices and CBT, likely contributed to these positive changes. By learning to identify, understand, and manage their emotions, participants were better equipped to cope with the challenges of their circumstances and reduce their vulnerability to mood disorders. Resilience, the ability to bounce back from adversity and thrive in the face of challenges, is a key factor in overcoming the negative effects of trauma. TIC programs, with their emphasis on fostering a sense of empowerment, promoting social support, and building coping skills, can play a crucial role in cultivating resilience among trauma-exposed individuals. This study's findings are consistent with this perspective by demonstrating improvements in behavioral problems among incarcerated youth who participated in the TIC program. By fostering a sense of empowerment, providing opportunities for social skills development, and teaching coping strategies, the TIC program helped participants to develop greater resilience and navigate the challenges of their environment more effectively. While the benefits of TIC have been demonstrated in various settings, including mental health clinics, schools, and community organizations, its application within the juvenile justice system has received less attention. This study contributes to this growing area of research by demonstrating the effectiveness of TIC in a juvenile detention center in Indonesia. The findings of this study suggest that TIC can be a valuable tool for addressing the mental health needs of incarcerated youth, a population that often faces significant challenges and barriers to accessing care. By implementing TIC programs within juvenile detention facilities, we can create a more supportive and healing environment for young people who have experienced trauma, promote their rehabilitation, and reduce their risk of recidivism. This study's findings also confirm previous research that has highlighted the high prevalence of trauma and mental health disorders among incarcerated youth. Incarcerated youth are disproportionately likely to have experienced multiple and complex traumas, including physical abuse, sexual abuse, neglect, and exposure to community violence. These traumatic experiences can have a profound impact on their mental health, leading to a range of disorders such as PTSD, depression, anxiety, and behavioral problems. The high prevalence of trauma and mental health disorders among incarcerated youth underscores the urgent need for interventions that address these issues. TIC, with its focus on understanding and responding to the impact of trauma, can be a critical component of a comprehensive approach to meeting the mental health needs of this vulnerable population.[15-17]

The study's findings have significant implications for both policy and practice within the juvenile justice system. These implications underscore the urgent need for a paradigm shift in how we approach the rehabilitation and care of incarcerated youth. The traditional punitive approach, which often focuses on punishment and control, has proven ineffective in addressing the underlying mental health needs of this

vulnerable population. Instead, a trauma-informed approach, which recognizes the pervasive impact of trauma and prioritizes healing and recovery, is essential for promoting the well-being of incarcerated youth and fostering their successful reintegration into society. The study's findings provide compelling evidence for the effectiveness of Trauma-Informed Care (TIC) programs in reducing trauma-related symptoms, improving emotional regulation, and promoting resilience among incarcerated youth. Therefore, implementing TIC programs in juvenile detention facilities should be a top priority for policymakers and practitioners. These programs should be designed to address the specific needs of incarcerated youth, incorporating elements of CBT, mindfulness, psychoeducation, and other evidence-based practices. TIC programs require adequate funding to support the training of staff, the provision of therapeutic services, and the creation of a safe and supportive environment within the facility. All staff members, including correctional officers, administrators, and mental health professionals, should receive comprehensive training on trauma-informed principles and practices. This training should cover topics such as the impact of trauma on behavior, the importance of creating a safe and supportive environment, and the use of trauma-specific interventions. Effective TIC programs require collaboration and coordination among various stakeholders, including juvenile justice agencies, mental health providers, and community organizations. This collaboration can ensure that incarcerated youth receive comprehensive and integrated care that addresses their mental health needs. TIC programs should be regularly evaluated and monitored to assess their effectiveness and identify areas for improvement. This evaluation should include measures of trauma-related symptoms, emotional regulation, behavioral problems, and other relevant outcomes. Implementing TIC programs is not simply about adding new services or interventions. It requires a fundamental shift in the culture of the juvenile justice system. A trauma-informed culture recognizes the pervasive impact of trauma and prioritizes the safety, well-being, and healing of incarcerated youth. A trauma-informed environment is physically and emotionally safe for all youth. It is free from violence, abuse, and exploitation. Staff members are trustworthy and transparent in their interactions with youth. They build rapport and establish clear expectations. Peer support programs can provide a valuable source of connection and understanding for incarcerated youth. These programs allow youth to share their experiences with others who have similar backgrounds and challenges. A trauma-informed approach emphasizes collaboration and mutuality between staff and youth. Youth are actively involved in their treatment planning and decision-making. Youth are empowered to make choices and express their voices. They are given opportunities to participate in activities that promote their sense of agency and control. A trauma-informed approach is sensitive to cultural, historical, and gender issues. It recognizes the unique needs and experiences of diverse populations of incarcerated youth. In addition to implementing TIC programs, it is essential to integrate mental health services into the juvenile justice system. This integration can improve access to evidence-based interventions like TIC and ensure that incarcerated youth receive the comprehensive care they need. Juvenile justice agencies can partner with community mental health providers to provide on-site or off-site mental health services to incarcerated youth. This can ensure that youth have access to a range of services, including individual therapy, group therapy, medication management, and crisis intervention. Juvenile detention facilities can establish specialized mental health units to provide intensive treatment to youth with severe mental health needs. These units should be staffed by trained mental health professionals and provide a therapeutic environment that promotes healing and recovery. Telehealth services can be used to provide remote mental health care to incarcerated youth, particularly in rural or underserved areas. This can improve access to care and reduce the need for

youth to be transported to off-site facilities. Implementing TIC and integrating mental health services into the juvenile justice system requires addressing systemic barriers that can hinder access to care. Stigma associated with mental health problems can prevent incarcerated youth from seeking help. It is essential to create a culture within the juvenile justice system that promotes mental health awareness and encourages youth to seek support. Many juvenile detention facilities lack the resources to provide adequate mental health services. This may include a shortage of trained mental health professionals, limited funding for programs and services, and inadequate space for therapeutic interventions. Policy and procedural barriers can also hinder access to mental health care. This may include restrictive policies that limit the types of services that can be provided or lengthy wait times for appointments.[18-20]

5. Conclusion

This study investigated the longitudinal impact of a trauma-informed care (TIC) program on mental health outcomes for incarcerated youth in Bandung, Indonesia. Youth in the TIC group demonstrated significant reductions in PTSD symptoms, depression, and anxiety over time compared to the control group. Improvements in behavioral problems were also observed in the TIC group. These positive changes were sustained over the 12-month period. The results of this study highlight the importance of addressing the mental health needs of incarcerated youth, a population that often faces significant challenges and barriers to accessing care. By implementing TIC programs within juvenile detention facilities, we can create a more supportive and healing environment for young people who have experienced trauma, promote their rehabilitation, and reduce their risk of recidivism. The findings of this study have significant implications for both policy and practice within the juvenile justice system. These implications underscore the urgent need for a paradigm shift in how we approach the rehabilitation and care of incarcerated youth. The traditional punitive approach, which often focuses on punishment and control, has proven ineffective in addressing the underlying mental health needs of this vulnerable population. Instead, a trauma-informed approach, which recognizes the pervasive impact of trauma and prioritizes healing and recovery, is essential for promoting the well-being of incarcerated youth and fostering their successful reintegration into society. The study's findings provide compelling evidence for the effectiveness of Trauma-Informed Care (TIC) programs in reducing trauma-related symptoms, improving emotional regulation, and promoting resilience among incarcerated youth. Therefore, implementing TIC programs in juvenile detention facilities should be a top priority for policymakers and practitioners.

6. References

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