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Strengthening Family Function Through Family APGAR–Based Assertive Communication and Behavioral Contracting: A Family Nursing Case Report

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ABSTRACT

Background: Adolescent substance abuse may impair family functioning, particularly communication and behavioral regulation. This case report aimed to examine the implementation of assertive communication training using the I-Message technique and behavioral contracting to improve family functioning.

Methods: A descriptive single-family case report was conducted involving one family with an adolescent who had a history of substance abuse. Family functioning was assessed using the Family APGAR before and after a five-day intervention. The intervention consisted of assertive communication training using the I-Message technique and collaborative behavioral contracting.

Results: The Family APGAR score increased from 3 to 8, indicating improvement from severe family dysfunction to good family functioning. The mean adherence rate to the behavioral contract was 73.3%. The greatest improvements were observed in the domains of adaptation, partnership, affection, and resolve.

Conclusion: Assertive communication training combined with behavioral contracting was associated with improvements in family functioning by more open communication, collaborative problem-solving, and consistent parental monitoring. These findings suggest a potential functioning among families with adolescents who have a history of substance abuse.

Keywords:

Family APGAR; assertive communication; behavioral contracting; family nursing

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Introduction

Family functioning is a fundamental component of health, development, and adaptation, enabling family members to cope with life challenges effectively. According to Friedman's family theory, families that perform affective, socialization, and behavioral control functions effectively are better able to solve problems, maintain healthy interpersonal relationships, and support the development of individual family members (Li et al., 2024). Conversely, impairment of these functions may

compromise family adaptation, increase interpersonal conflict, and disrupt family relationships, a condition recognized in nursing terminology as impaired family processes.

Substance abuse among adolescents is one of the major conditions that threatens family functioning. Evidence indicates that approximately 73% of individuals with substance use disorder (SUD) originate from families experiencing varying degrees of family dysfunction, while approximately 33% belong to families with severe dysfunction (Xia et al.,



2022). These findings demonstrate that substance abuse affects not only the individual but also disrupts the family as the primary support system (Rushton et al., 2025).

Adolescent substance abuse remains a complex and persistent global public health challenge. In Indonesia, the problem continues to affect a substantial proportion of adolescents and young adults. Data from the Indonesian National Narcotics Board (BNN) indicate that substance abuse remains prevalent among productive-age populations, particularly adolescents, thereby affecting the family (Tilka et al., 2023). According to the Indonesian Child Protection Commission, approximately 14,000 drug users are aged between 12 and 21 years. Furthermore, the 2023 BNN survey reported a national prevalence of substance abuse of 1.73%, equivalent to approximately 3.33 million individuals, of whom nearly 312,000 were adolescents and young adults aged 14-26 years (Astuti et al., 2022). The consequences of adolescent substance abuse extend beyond physical and psychological health problems. Families frequently experience chronic stress, social stigma, role disorganization, and deterioration of family functioning, further emphasizing the need for family-centered interventions.

Current therapeutic approaches for adolescents with substance use disorders primarily emphasize medical rehabilitation and psychological treatment using a patient-centered approach, often overlooking the family as a dynamic system that plays a central role in recovery (Aswathy et al., 2026). From a nursing perspective, the family is recognized as the primary unit of care, responsible for providing emotional support, socialization, and behavioral regulation. Therefore, strengthening family functioning is essential for

improving adolescent recovery outcomes and preventing relapse.

The principles of Family-Centered Care (FCC) support active family involvement in care planning, decision-making, and relapse prevention. Consequently, interventions that promote healthy communication, collaborative problem-solving, and effective behavioral supervision are highly relevant to family nursing practice (Serrano & Vela, 2023).

Several family-based interventions, including family psychoeducation, family counseling, motivational interviewing, and other family therapy approaches, have demonstrated effectiveness in improving family involvement and reducing recurrent substance use among adolescents (Becker et al., 2022). Despite these benefits, many families continue to experience difficulties in maintaining effective communication, establishing collaborative relationships, and implementing consistent behavioral monitoring. This suggests that improving family participation alone may not be sufficient to strengthen overall family functioning in everyday family interactions.

Previous studies have shown that family communication quality, parental monitoring, and consistent family rules are strongly associated with relapse risk among adolescents with substance use disorders (Patel et al., 2021). Nevertheless, existing interventions have largely focused on increasing family participation and modifying adolescent behavior, rather than strengthening overall family functioning. Similarly, communication training and behavioral contracting have primarily been implemented as behavior modification strategies for adolescents instead of comprehensive interventions targeting family functioning (Busse et al., 2021). Furthermore, overall family functioning

has rarely been evaluate using the multidimensional Family APGAR framework, particularly through pre- and post- intervention assessments among families caring for adolescents with a history of substance abuse. Consequently, evidence regarding family nursing interventions that not only strengthen family functioning but also evaluate changes before and after the intervention using the Family APGAR remains limited.

Based on this gap, the present case report integrates assertive communication training using the I-Message technique and collaborative behavioral contracting as practical family nursing interventions that can be implemented in everyday family interactions. Unlike broader family psychoeducation or family therapy programs, the present intervention was designed as a brief, structured, skill-based family nursing intervention that focused specifically on practicing assertive communication and collaboratively establishing and monitoring concrete behavioral agreements within everyday family interactions. In addition to providing the intervention, this case report evaluates changes in family functioning before and after the interventions using the Family APGAR, thereby providng a more comprehensive understanding of changes across the domains of adaptation, partnership, growth, affection and resolve.

This case report is guided by Friedman's Family Nursing Theory, which conceptualizes the family as an integrated system responsible for affective functioning, socialization, behavioral regulation, adaptation, and problem-solving. The intervention is further supported by the principles of Family-Centered Care (FCC), which emphasize collaborative partnerships between healthcare providers and

families throughout the care process. These two frameworks are conceptually complementaryThe Friedman Family Assessment Model provides a structured framework for assessing family structure and functioning and identifying family nursing needs (Andriani et al., 2026). Based on the family assessment and the needs identified through this theoretical perspective, FCC provides a collaborative approach that actively engages family members in care planning, decision making, and intervention implementation. Together, these frameworks establish a coherent foundation in which family assessment informs collaborative nursing care aimed at strengthening family functioning.

Within this framework, assertive communication training using the I-Message technique is intended to improve adaptive communication among family members, whereas behavioral contracting facilitates collaborative rule-setting and consistent behavioral monitoring. Improvements in these processes are expected to enhance family functioning, as measured by the Family APGAR, particularly in the domains of adaptation, partnership, affection, growth, and resolve.

Methods

Research Design

This study employed a descriptive case report design to describe the implementation of family nursing care for a family with an adolescent who had a history of substance abuse. The preparation and reporting of this case report were guided by the CARE (Case Report) Guidelines to promote systematic and transparent reporting of the case, intervention and outcomes (Gagnier et al., 2013). The intervention focused on Ms. G, the family member

who played the most active role in daily communication, supervision, and interaction with the adolescent. The nursing care process followed the standardized nursing process, including assessment, nursing diagnosis, intervention planning, implementation, and evaluation, based on the Indonesian Nursing Diagnosis Standards (SDKI), Indonesian Nursing Intervention Standards (SIKI), and Indonesian Nursing Outcomes Standards (SLKI).

Setting and Samples

The case involved a nuclear family consisting of five members: Mr. S (46 years), Mrs. A (44 years), Mr. A (27 years), Ms. G (19 years), and Mr. R (14 years). According to Friedman's family developmental stages, the family was in the family with adolescents stage.

A purposive sampling strategy was employed to select this case because the family presented impaired family functioning associated with an adolescent who had a history of substance abuse. Ms. G was purposively selected as the primary participant because she demonstrated the greatest involvement in daily communication, supervision, and interaction with the adolescent, making her the most appropriate family member to receive the intervention. The initial family assessment included the caregiving roles and interaction patterns of other family members, including the parents. Although the parents remained involved in the adolescent's care, the assessment identified Ms. G as family member who had the most frequent daily communication and interaction with Mr. R. Mr. R also demonstrated greater comfort and openness in communicating with Ms. G. Given that the intervention

emphasized repeated communication practice and collaborative behavioral monitoring in everyday interactions, these family dynamics supported the selection of Ms. G as the primary participant.

The inclusion criteria were: (1) families with an adolescent who had a history of substance abuse, (2) families experiencing impaired family functioning characterized by communication and behavioral supervision problems, and (3) willingness to participate throughout the intervention. No formal exclusion criteria were applied because this study involved a single-case report.

The adolescent had a history of polydrug use, involving tramadol combined with cough medicine, reportedly initiated following emotional distress after a romantic relationship breakup. Although substance use had ceased before data collection, the adolescent had never accessed healthcare or rehabilitation services because of fear of stigma. Initial family assessment revealed ineffective communication, inconsistent behavioral supervision, absence of written family rules, and difficulties managing adolescent behavior. Based on the assessment, nursing diagnoses of Impaired Family Processes and Deficient Knowledge regarding adolescent behavioral management were established.

The intervention consisted of assertive communication training using the I-Message technique and collaborative behavioral contracting. The program was implemented over five consecutive days, comprising five sessions, each lasting 15-30 minutes as a brief family intervention.

Measurement and Data Collection

Family functioning was assessed using the Family Adaptation, Partnership, Growth, Affection, and Resolve (Family APGAR) questionnaire developed by Smilkstein (1982). The instrument was adopted without modification as both the pre-intervention and post-intervention assessment tool.

The Family APGAR consists of five domains: adaptation, partnership, growth, affection, and resolve, reflecting perceived family functioning. The Family APGAR was selected because its brief, multidimensional structure was appropriate for repeated assessment within the short clinical timeframe of this case report and aligned with the domains of family functioning addressed by the intervention. No additional standardized instrument for assessing family functioning was administered as part of the nursing care process. Accordingly, the quantitative assessment focused on the dimensions of family functioning captured by the Family APGAR. Each item is rated on a three-point Likert scale (0 = hardly ever, 1 = some of the time, and 2 = almost always), producing total scores ranging from 0 to 10. Scores of 7-10 indicate good family functioning, 4-6 moderate family dysfunction, and 0-3 severe family dysfunction (Karimi et al., 2022).

Data collection was conducted through family interviews, direct observation, and Family APGAR assessment before and after the intervention. Family APGAR has demonstrated satisfactory psychometric properties across different populations, with reported Cronbach's alpha values ranging from 0.80 to 0.85 (Huynh & Nguyen, 2024). The use of the Family APGAR instrument complied with its intended clinical and research application as originally developed by Smilkstein.

Data collection and intervention implementation were conducted over five consecutive days. On Day 1, existing family communication patterns were identified and baseline family functioning was assessed using the pre-intervention Family APGAR. Day 2 and 3 focused on education and role play using the I-Message technique, during which Ms.G practiced expressing feelings and expectations in a more constructive manner. On day 4 and 5, Ms.G applied the I-Message technique during family interactions. On Day 5, family functioning was reassessed using the post-intervention Family APGAR. The structured five-day intervention and data collection procedures are presented in Table 1 to provide a chronological overview of the case management in accordance with the CARE reporting recommendations.

Table 1. Timeline of Assessment, Intervention Sessions, Behavioral Monitoring, and Post-intervention Evaluation

Day	Learning Objective	Intervention Activities	Assessment
Day 1	Identify existing family communication patterns and establish baseline family functioning	Identification and discussion of communication patterns commonly used in daily family interactions	Pre-intervention Family APGAR

Day	Learning Objective	Intervention Activities	Assessment
Day 2	Introduce assertive communication using the I-Message technique	Education on the I-Message technique followed by guided role play	-
Day 3	Reinforce the use of assertive communication	Continued I-Message education and roleplay to practice constructive communication	-
Day 4	Apply the I-Message technique in family interactions	Application of the I-Message technique during family communication	-
Day 5	Consolidate the application of the I-Message technique and evaluate family functioning	Continued application of the I-Message technique during family interactions	Post-intervention Family APGAR

Alongside the communication intervention, a behavioral contract was collaboratively developed by Ms. G and Mr. R. The contract comprised three mutually agreed and observable behavioral targets: reducing smoking, returning home by 9:00 PM, and informing family members before leaving home. Adherence to each target was assessed daily over the five-day intervention period through family-based monitoring, primarily by Ms. G and the adolescent's mother, and recorded as either adherent or non-adherent. A de-identified scanned copy of the original behavioral contract and daily adherence monitoring form.

The intervention was delivered by the first author, who was enrolled in a professional nursing program and undertaking supervised clinical practice at the time of intervention delivery. The intervention provider had received academic and clinical preparation in family nursing assessment, nursing care planning and family focused interventions as part of the professional nursing curriculum. The assessment,

intervention planning and implementation were conducted under the academic supervision of the second and third authors, faculty members in the community nursing department with expertise in family nursing. Their supervisory role included providing guidance on the family nursing assessment, intervention planning and evaluation of the nursing care process. No formal fidelity assessment or intervention checklist was used during the five-day intervention. To maintain consistency across sessions, the intervention was delivered by the same provider according to the predefined five-day protocol, with academic supervision throughout the nursing care process.

Data Analysis

Data were analyzed descriptively by comparing pre-intervention and post-intervention Family APGAR scores to evaluate changes in family functioning. In addition, observational data regarding family communication patterns, interpersonal interactions, together with family-monitored behavioral contract

adherence data were analyzed narratively to complement the quantitative findings. Because this study was a single-case report, no inferential statistical analysis or statistical software was used.

Ethical Considerations

This case report was conducted in accordance with the ethical principles of respect for autonomy, confidentiality, beneficence, and non-maleficence. Written informed consent was obtained from the participating family before data collection, and all identifying information was anonymized to protect participant confidentiality (Kang & Hwang, 2021). Institutional approval for the implementation and documentation of the nursing care was obtained from Faculty of Nursing, Universitas Padjadjaran. Written informed consent for the use and publication of case-related information was obtained from the participant and her legal representative. The consent included permission to publish case-related information in a scientific journal while maintaining participant anonymity and confidentiality. All identifying information was removed from the manuscript prior to publication.

Results

The case involved a 19-year-old female family member (Ms. G) who was purposively selected as the primary participant because she played the most active role in daily communication and behavioral supervision of her 14-year-old

younger sibling (Mr. R), who had a history of polydrug use involving tramadol combined with cough medicine. The family consisted of five members and was classified as a nuclear family at the developmental stage of families with adolescents according to Friedman's family developmental framework.

The intervention was implemented over five consecutive days and consisted of two integrated components: assertive communication training using the I-Message technique and collaborative behavioral contracting.

Initially, Ms. G frequently expressed concerns through direct criticism and statements focusing on the adolescent's mistakes, often triggering defensive responses and family conflict. Throughout the intervention, she participated in discussion and role-play sessions to practice the I-Message technique. By the fourth and fifth sessions, Ms. G demonstrated improved ability to communicate her feelings and expectations more constructively while actively listening during family discussions.

Behavioral contracting was collaboratively developed between Ms. G and Mr. R. The contract included three mutually agreed behavioral targets: reducing smoking, returning home before 9:00 PM, and informing family members before leaving home. Compliance with the behavioral contract was monitored daily for five consecutive days. The adherence data presented in Table 1 were based on daily family monitoring, primarily by Ms. G and the adolescent's mother.

Table 1. Behavioral Target and Daily Adherence During the Five-Day Intervention

No	Behavioral Target	Day 1	Day 2	Day 3	Day 4	Day 5	Adherence
1	Reduce smoking behavior	X	✓	✓	X	✓	3/5 (60%)
2	Return home no later than 9:00 PM	✓	✓	✓	✓	✓	5/5 (100%)



No	Behavioral Target	Day 1	Day 2	Day 3	Day 4	Day 5	Adherence
3	Inform family before leaving home	X	X	✓	✓	✓	3/5 (60%)
Average							73,3%

Note. ✓ = Adherent; X = Non-adherent.

As shown in Table 1, the adolescent demonstrated an overall adherence rate of 73.3% throughout the intervention. Full adherence (100%) was achieved for returning home before 9:00 PM, whereas adherence to reducing smoking behavior and informing family members before leaving home each reached 60%. Most episodes of non-adherence occurred during the early phase of the intervention, followed by gradual improvement across the monitoring period. No unexpected adverse events

occurred during the intervention. However, initial reluctance to consistently follow some behavioral targets and Ms. G's need for repeated practice in applying the I-Message technique represented minor implementation challenges that gradually diminished over the course of the intervention.

Changes in family functioning before and after the intervention are presented in Table 2.

Table 2. Changes in family functioning before and after the intervention

APGAR Domain	Nn.G	
	Pre-test	Post-test
A: Adaptation I am satisfied that I can turn to my family for help when something is troubling me.	0	2
P: Partnership I am satisfied with the way my family discusses problems and shares decision-making with me.	0	1
G: Growth I am satisfied that my family supports my personal growth and participation in new activities.	2	2
A: Affect I am satisfied with the way my family expresses affection and responds to my emotions.	0	1
R: Resolve I am satisfied with the way my family and I share time together.	1	2
Total	3	8
Family Function Category	Severe family dysfunction	Good family functioning

Family APGAR scores range from 0 to 10. Scores of 7-10 indicate good family functioning, 4-6 moderate family dysfunction, and 0-3 severe family dysfunction.

As presented in Table 2, the Family APGAR score increased from 3 before the intervention to 8 after the intervention, indicating an improvement from severe family dysfunction to good

family functioning. Improvements were observed in the domains of adaptation, partnership, affection, and resolve, whereas the growth domain remained unchanged at the maximum score, suggesting that family support for individual development had already been well established before the intervention.

Although the Family APGAR assessment was also completed by the adolescent's mother as part of the family nursing assessment, the quantitative results presented in this case report focus on Ms. G because she was the predefined primary participant and the main recipient of the communication-focused intervention. The mother's assessment demonstrated a similar pattern of improvement in perceived family functioning, consistent with the observational findings obtained during the nursing care process. Therefore, the Family APGAR scores reported in this manuscript represent the primary participant's outcomes, while the mother's assessment serves as supportive clinical information rather than the primary outcome of the case report.

Overall, the integrated intervention combining assertive communication training using the I-Message technique and behavioral contracting was associated with improvements in family communication, behavioral supervision, and family functioning. These improvements were reflected by increased adherence to collaboratively established behavioral rules (Table 1) and a substantial increase in the Family APGAR score (Table 2).

Discussion

The present case report demonstrated that integrating assertive communication training using the I-Message technique with behavioral contracting was associated with improved family functioning, as

reflected by an increase in the Family APGAR score from 3 (severe family dysfunction) to 8 (good family functioning). In addition, the adolescent achieved an overall behavioral contract adherence rate of 73.3%, accompanied by improvements in family communication, collaborative problem-solving, and behavioral monitoring.

These findings are consistent with Friedman's Family Nursing Theory, which conceptualizes the family as an interactive system in which effective communication, emotional support, and behavioral regulation are essential for maintaining healthy family functioning. According to this framework, disruption of affective functioning and behavioral control contributes to impaired family processes. Following the intervention, improvements in the Family APGAR domains of adaptation, partnership, affection, and resolve were observed, suggesting that strengthening communication and collaborative decision-making may have contributed to improvements in family functioning. In contrast, the Growth domain remained unchanged because it had already achieved the maximum pre-intervention score, indicating that family support for individual development had been well established before the intervention.

The selection of Ms. G as the primary participant was supported by the initial family assessment, which identified her as the family member most actively involved in the adolescent's daily communication and supervision. Although the parents remained involved in caregiving, Ms.G's more frequent daily interactions and the adolescent's greater comfort and openness in communicating with her made her relational role particularly relevant to the communication focused intervention. This approach is consistent with previous evidence indicating that

sibling relationships significantly influence adolescents' emotional regulation, decision-making, and behavioral development. Adolescents are often more receptive to support and behavioral modeling provided by siblings who are closer in age than by parental authority figures, highlighting siblings as potential agents of change within family-based interventions (Defoe et al., 2023). Similar interventions may also be applicable when parents serve as the primary caregivers, provided they are adapted to the family's caregiving roles and communication dynamics.

The observed improvement in adaptation and partnership may be attributed to the use of the I-Message technique, which enabled the participant to communicate feelings, needs, and expectations without blaming or criticizing the adolescent. This communication strategy likely reduced defensive responses and promoted more constructive family discussions. Similar findings have been reported by Conerly et al., (2022) who demonstrated that family communication skills training improved family interactions and reduced conflict among adolescents with substance use histories.

Likewise, improvements in affection and resolve appeared to be facilitated by the collaborative behavioral contract, which established mutually agreed family rules, consequences, and structured behavioral monitoring. This intervention addressed the family's knowledge deficit regarding adolescent behavioral management while strengthening the family's behavioral control function. The observed behavioral adherence rate of 73.3% suggests that collaboratively established behavioral expectations may enhance consistency in family supervision. These findings are consistent with previous studies

demonstrating that effective parental monitoring and consistent family rules are protective factors against adolescent risk behaviors and substance use relapse (Hogue et al., 2021).

This case report adds to previous evidence by illustrating how integrating assertive communication training and behavioral contracting was associated with improvements in family functioning within this family. While previous family-based interventions have primarily emphasized psychoeducation, counseling, or behavioral modification of adolescents, the present intervention targeted communication patterns and behavioral regulation within the family system itself. Improvements in Family APGAR scores suggest that strengthening family communication and collaborative behavioral management may contribute to restoring family functioning among families with adolescents who have a history of substance abuse. These findings support the application of family-centered nursing interventions that emphasize skill development and active family participation as complementary approaches to conventional substance use management.

The findings of this case report contribute to the growing body of evidence supporting family-centered nursing interventions for adolescents with a history of substance abuse. Conceptually, the study reinforces Friedman's Family Nursing Theory by illustrating how improvements in communication and behavioral regulation can enhance overall family functioning. Scientifically, the integration of assertive communication training and behavioral contracting provides preliminary observations suggesting that family skill-building interventions may have potential as complementary approaches to conventional rehabilitation by targeting

the family system rather than the individual alone. Because this report describes a single family, these observations should be interpreted as exploratory and require confirmation through studies involving larger samples and comparative designs. The observed improvements may also have been influenced by increased attention during the nursing care process or by natural family adaptation over time. These alternative explanations should be considered when interpreting the findings of this single-family case report. Future research involving multicenter case series, quasi-experimental studies, or randomized controlled trials with larger samples and longer follow-up periods is warranted to establish the effectiveness and broader applicability of this intervention.

This case report has several limitations. First, it involved a single family, resulting in limited external validity and generalizability to broader populations. Second, the five-day follow-up period was insufficient to determine the long-term sustainability of behavioral and family functioning changes. Third, the adolescent's substance use status was based primarily on family reports and observational findings without medical verification or formal rehabilitation assessment. Fourth, no formal fidelity assessment or intervention checklist was used. Therefore, adherence to the predefined intervention protocol could not be independently verified. Fifth, family functioning was assessed using the Family APGAR alone, without a complementary standardized family assessment instrument, which may have limited the breadth of the family functioning assessment. As a self-reported measure, the Family APGAR may also be subject to response or social desirability bias. Finally, the family's reluctance to access rehabilitation

services because of stigma may have influenced both intervention implementation and outcome evaluation.

Conclusion

This case report demonstrated that the integration of assertive communication training using the I-Message technique and collaborative behavioral contracting was associated with improvements in family functioning among a family with an adolescent who had a history of substance abuse. Following the intervention, the Family APGAR score increased from 3 (severe family dysfunction) to 8 (good family functioning), indicating enhanced communication, family partnership, affection, and problem-solving capacity. In addition, the adolescent achieved an overall behavioral contract adherence rate of 73.3%, suggesting improved consistency in family behavioral monitoring. These findings suggest that integrating communication skill training with collaborative behavioral management was associated with improvements in family functioning and may represent a practical family nursing intervention for families caring for adolescents with a history of substance abuse.

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Author contribution

Amiranendya Shabrina Yudiaputri: Conceptualization, case report design, nursing assessment, intervention implementation (assertive communication training using the I-Message technique and behavioral contracting), data collection, data analysis, manuscript drafting, and manuscript revision.

Raini Diah Susanti: Methodological supervision, critical review of the manuscript, interpretation of findings, and manuscript revision.

Hartiah Haroen: Academic supervision, critical review of the manuscript, interpretation of findings, and final manuscript revision.

Conflict of interest

The authors declare that they have no competing interests or conflicts of interest, whether financial or non-financial, related to the conduct of this case report or the publication of its findings.

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