

## Effect of the VOLANTIN resilience promotion program on children with an alternative residential system

### Efectos de la implementación del programa de promoción de la resiliencia “VOLANTÍN” en niños(as) con sistema de cuidados alternativo residencial

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#### What do we know about the subject matter of this study?

Resilience is a skill that can be promoted through different interventions, and it is especially important to carry out programs that allow working on this ability in highly vulnerable groups such as children and adolescents in alternative residential care systems.

#### What does this study contribute to what is already known?

There is limited evidence on resilience interventions in children living in residential care, especially at the national level. In addition, it provides strong evidence about the possibility of achieving positive results in the developmental trajectories of a vulnerable population.

#### Abstract

Internationally, there are resilience promotion programs applied to children in residential alternative care with favorable results. The application of the resilience promotion program “VOLANTÍN” has shown to be effective in different groups of school-age children, favoring the development of resilience. **Objective:** To describe the results of the implementation of the “VOLANTÍN” program on the level of resilience, self-concept, and emotional symptoms in children aged 7-12 years in residential alternative care (foster care). **Subjects and Method:** descriptive, longitudinal study. The “VOLANTÍN” program was implemented in a sample of 15 foster children between 7-12 years old. The variables measured were the “Escala de Resiliencia Escolar” (ERE), the Piers-Harris Children’s Self-Concept Scale, the Anxiety Self-report for Children and Adolescents (AANA), and the Children’s Depression Inventory (CDI) at the beginning, at the end, and 3 months after the end of the program, and then were analyzed statistically by nonparametric test. **Results:** At the beginning, the end, and three months after the program implementation, there was a significant increase in the total sco-

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res of ERE (p0.045), subscales “networks-models” (p0.002) and “external resources” (p0.018); and Self-concept (p0.005), subscales “behavior” (p0.045) and “popularity” (p0.03). AANA total scores decreased significantly (p0.004) as well as the subscales “panic/somatic” (p0.025) and “generalized anxiety” (p0.009). CDI scores decreased, but not significantly. **Conclusion:** The application of the resilience promotion program “VOLANTÍN” increased resilience and self-concept scores and decreased anxious symptoms in children aged 7-12 years.

## Introduction

Childhood is a period when unfavorable conditions can compromise developmental trajectories. The effects of these threats can be reduced by a set of inter- and intra-personal skills that allow the individual to face and overcome problems and adversities. This group of abilities has been called resilience, which can be learned, developed, and strengthened through programs to promote it<sup>1</sup>.

Institutionalized children and adolescents are under the supervision of a third party due to the detection of violations of their rights, requiring protection to avoid a negative impact on their development. In Chile, the National Service for Minors (SENAME) is the agency in charge of ensuring protection and providing optimal conditions to maintain well-being and allow the development of this population<sup>2</sup>. For this purpose, it has different mechanisms, such as the alternative residential care systems (SCAR), where minors live in a community under the protection of third parties other than their families. The presence of resilience in these children is a key element for the favorable overcoming of events, thus promoting better results in their future development, despite the presence of adversities<sup>3</sup>.

Children in SCAR experience higher levels of psychopathology, neurodevelopmental disorders, and educational difficulties than children who are not in alternative care<sup>4</sup>. In adolescents in residential care, these difficulties increase, with high rates of mental illness, including suicidal tendencies, depression, and post-traumatic stress disorder<sup>5</sup>. The consequences often persist into adulthood, resulting in high levels of imprisonment, homelessness, and unemployment<sup>6</sup>. Interventions that promote resilience in foster children have demonstrated improvements in school attendance and decreases in violence, crime, and drug use<sup>3</sup>.

“VOLANTÍN” is a group resilience promotion program, implemented in schools and consulting population in children between 7 and 12 years old in the last 6 years, demonstrating a positive effect on the acquisition of the abilities that compose resilience<sup>7,8,9,10</sup>. The program is based on a contextual and relational model, with the objectives of teaching and practicing positive communication styles, identification, expression, and

monitoring of emotions at the mental and body level, skills in emotional regulation and assertive problem solving, coping skills, good interpersonal skills, and an optimistic thinking style<sup>7</sup>.

The objective of this work is to describe the results of the implementation of the “VOLANTÍN” program on resilience, self-concept, and emotional symptoms in children aged 7-12 years in SCAR.

## Subjects and Method

Descriptive, longitudinal study, with quantitative methodology. Twenty-one children aged from 7 to 12 years, belonging to family foster homes of the *Fundación Moreau*, were included in the resilience promotion program “VOLANTÍN”, which consisted of an intervention of 10 group work sessions for children and 2 group sessions for caregivers. The intervention team was composed of previously trained psychiatrists, psychologists, and child and adolescent psychiatry residents. The sessions lasted about 1.5-2 hours, one week apart. It was carried out between the second semester of 2018 and the first semester of 2020, in 2 groups. A reinforcement session was carried out 3 months after the end of the intervention.

The inclusion criteria were belonging to the residential care at the time of the intervention, age 7 to 12 years at the beginning of the intervention, and assent and signed informed consent; the latter was signed by the legal guardian of the minor at the time of the intervention. The presence of clinically established intellectual disability and failure to complete the program were the exclusion criteria.

The variables analyzed were the demographic characteristics of the sample, depressive symptoms reported through the “Children’s Depression Inventory” (CDI); anxiety symptoms by the “Anxiety Self-Report for Children and Adolescents” (AANA) with the subscales “panic/somatic”, “separation anxiety”, “generalized anxiety”, “school phobia”, and “social phobia”; and resilience reported through the “School Resilience Scale” (ERE for its acronym in Spanish) with the subscales “identity-self-esteem”, “networks-models”, “learning-generativity”, “internal resources”, and “ex-

ternal resources”; and self-concept reported through the “Piers-Harris Self-Concept Scale” with the subscales “behavior”, “intellectual and school status”, “appearance-physical attributes”, “anxiety”, “popularity”, and “happiness and satisfaction”.

Descriptive statistics were performed using the SPSS 26 software, comparing mean scores obtained in the first and tenth sessions in the intervention group, and 3 months after the end of the program using the Friedman’s nonparametric test, which compares three or more related samples.

This research was approved by the Human Research Ethics Committee of the Faculty of Medicine of the University of Chile.

## Results

Twenty-one children in SCAR participated in the “VOLANTÍN” program (13 females and 8 males). Fifteen of them were included in this study; the remaining 6 met exclusion criteria. Table 1 shows the characteristics of the sample.

The results from the CDI show that the mean scores decrease throughout the intervention period and at 3-month follow-up, i.e., a decrease in depressive symptoms, however, this decrease does not reach statistical significance (table 2).

In the results of the AANA, a significant difference was observed in the total decrease of anxiety symptoms ( $p$  0.004), and in the subscales “panic/somatic” ( $p$  0.025) and “separation anxiety” ( $p$  0.009) (table 3).

In the ERE, a significant difference was observed in the total score ( $p$  0.045), subscales “networks-models” ( $p$  0.002), and “external resources” ( $p$  0.018). The “networks-models” subscale refers to the perception of support, affective networks, social networks, orientation, and perception of future goals; and the “external resources” subscale refers to interactional aspects with the environment that intervene in the construction of resilient behavior (table 4).

Finally, in the results of the Piers-Harris self-concept scale, there was a significant difference in the total score ( $p$  0.005) and subscales “behavior” ( $p$  0.045) and “popularity” ( $p$  0.03). The behavior subscale reflects the degree to which the child admits or denies a problematic behavior, and the popularity subscale reflects how the child evaluates her or his popularity among peers (table 5).

## Discussion

The application of the resilience promotion program “VOLANTÍN” with children in SCAR showed a

significant increase in resilience and self-concept and a significant decrease in anxiety symptoms. Although there was a decrease in depressive symptomatology, it was not statistically significant.

These results add up to those already obtained in previous implementations of the “VOLANTÍN” program in the school population, both at the community level and as consultants, laying promising foundations for a program to promote resilience in different groups of school children, with improvements in resilience<sup>9,10</sup>, self-concept<sup>8,9,10</sup>, anxiety symptoms<sup>8</sup>, and depressive symptoms<sup>9,10</sup>.

Institutionalized children have more behavior problems, emotional and attentional conflicts, lower psychosocial and academic competencies, and severe depressive symptoms than children living with their parents<sup>11,12,13</sup>. The results of the current intervention show that it is possible to promote the acquisition of skills that optimize the developmental trajectories of this population, with the group intervention strategy as a useful tool for promoting resilience in them.

The adaptation and group implementation of the “Friends for Life” program in girls in foster homes by Gallegos et al shows similar results to those found in this research. The authors observed a decrease in anxious symptoms, negative mood, and psychosocial difficulties, along with an increase in proactive coping skills, self-concept, and optimism<sup>14,15</sup>. The observed changes in self-concept are particularly comparable with our investigation because they use the same scale (Piers-Harris Self-Concept Scale). The group application of the Friends for Life program showed a significant improvement in the total scores and the popularity subscale, but not in the behavior subscale, which

**Table 1. Demographic characteristics**

Total sample	15 children
• Women	11 girls
• Men	4 boys
Average age	10 ayes
Average attendance	8 sessions
Average time in SCAR at the beginning of the intervention	39,3 months (2 monts to 84 months)

**Table 2. Children’s Depression Inventory (CDI) results**

Mean (DS)	Pre-intervention	Post-intervention	3 month
	15 (9.82)	12.93 (8.916)	9.60 (6.379)
Friedman’s test	p 0.197		

Friedman’s non-parametric test compares the 3 variables (pre, post and 3 months of intervention) together.

was observed in this study. At this point, it is important to mention that the research by Gallegos et al.<sup>14,15</sup> was carried out only on girls, unlike our study which also includes boys. There is extensive literature demonstrating that there is a higher prevalence of externalizing and behavioral problems in boys than in girls<sup>19</sup>.

In a new application of the Friends for Life pro-

gram for orphan girls, there were improvements in self-concept and the subscale “physical appearance and attributes” and “popularity”<sup>14,15</sup>. These findings can be understood considering that the program promotes positive participation in the different activities, an optimistic thinking style, and better recognition of the child’s uniqueness and personal strengths. Authors

**Table 3. Anxiety Self-Report for Children and Adolescents (AANA) results**

Scale/subscales	Pre-intervention Mean (DS)	Post-intervention Mean (DS)	3 month Mean (DS)	Value p (Friedman’s test)
Total	35.53 (16.409)	34.13 (14.004)	27.67 (14.922)	0.004*
Panic/somatic	8.07 (6.984)	7.27 (4.350)	4.93 (3.826)	0.025*
Generalized anxiety	8.93 (4.773)	8.67 (3.773)	6.47 (4.207)	0.130
Separation anxiety	8.93 (4.284)	8.13 (4.734)	6.53 (3.335)	0.009*
Social phobia	6.67 (3.352)	7.40 (3.376)	6.53 (3.335)	0.246
School phobia	2.93 (2.017)	2.53 (1.302)	2.07 (1.534)	0.186

Friedman’s non-parametric test compares the 3 variables (pre, post and 3 months of intervention) together.

**Table 4. Escala de Resiliencia Escolar results**

Scale/subscales	Pre-intervention Mean (DS)	Post-intervention Mean (DS)	3 month Mean (DS)	Value p (Friedman’s test)
Total	112.67 (14.715)	113.40 (15.028)	120.60 (9.295)	0.045*
Identity – self esteem	35.20 (6.992)	36.67 (5.538)	37.73 (4.877)	0.253
Networks-models	37.87 (5.805)	37.93 (6.307)	42.40 (2.874)	0.002*
Learning - generativity	39.53 (4.172)	38.80 (5.634)	40.47 (4.224)	0.758
Internal resources	52.87 (7.846)	54.33 (7.247)	56.93 (5.470)	0.173
External resources	59.80 (7.711)	59.07 (8.216)	63.67 (5.219)	0.018*

Friedman’s non-parametric test compares the 3 variables (pre, post and 3 months of intervention) together.

**Table 5. Piers-Harris Self Concept Scale results**

Scale/subscales	Pre-intervention Mean (DS)	Post-intervention Mean (DS)	3 month Mean (DS)	Value p (Friedman’s test)
Total	47.40 (11.605)	49.87 (10.703)	55.13 (9.978)	0.005*
Behavior	8.80 (2.624)	8.67 (2.920)	10.60 (2.849)	0.045*
Intellectual and school status	10.53 (2.722)	10.40 (3.501)	11.47 (3.159)	0.092
Appearance-physical attributes	9.53 (1.885)	9.60 (2.613)	10.20 (1.897)	0.180
Anxiety	7.27 (3.195)	8.53 (2.295)	9.00 (2.619)	0.348
Popularity	6.93 (2.789)	7.73 (2.017)	8.47 (1.885)	0.030*
Happiness and satisfaction	8.47 (1.885)	8.87 (2.200)	9.47 (1.598)	0.092

Friedman’s non-parametric test compares the 3 variables (pre, post and 3 months of intervention) together.

propose that this intervention model favors the reduction of peer problems, decreases community violence victimization, reduces behavior problems, and improves self-esteem<sup>16,17,18</sup>.

Most of the studies and interventions based on the promotion of resilience carried out in the SCAR population do not use a direct scale to quantify it<sup>14,15</sup>. The application of the ERE in this study showed significant positive changes in the subscales “networks-model” which refers to the perception of support, affective networks, social networks, orientation, and perception of future goals, and “external resources” referring to interactional aspects with the environment that intervene in the construction of resilient behavior, which can be attributed not only to the objectives of the program, but also to the group intervention methodology, creating a sense of belonging and establishing better ties (networks) among group members, along with strategies to train basic social skills, problem-solving, and cognitive restructuring through modeling, role-playing, feedback, and reinforcement of positive behaviors.

Tables 2 and 3 describe a significant decrease in anxiety symptoms and a non-statistically significant downward trend in depressive symptoms. It is likely that, as the sample size increases, the decrease in depressive symptoms could reach statistical significance. In the first studies carried out on the Friends For Life program, Stopa et al.<sup>18</sup> mention that the reduction of depressive symptoms may be the result of learning to think positively, establishing social support groups, valuing one’s uniqueness as a person, and identifying personal strengths, which are all components promoted in the “VOLANTIN” program. The potential benefit of reducing anxiety and depressive symptomatology and promoting protective factors in institutionalized children seems to be promising in the prevention of mental illness in this highly vulnerable population.

The results obtained in this investigation are comparable with the study conducted by Leve et al.<sup>16</sup> who applied the Middle School Success program in foster homes, observing an increase in prosocial behaviors and a decrease in internalizing and externalizing problems. Although the methodology of this study does not standardize internalizing and externalizing problems, the significant decrease in anxiety symptoms and the downward trend in depressive symptoms found after the implementation of the “VOLANTIN” program can be equated with the decrease in internalizing problems found by Leve et al.

Residential care focuses on ensuring the protection of children, sometimes paying attention to avoiding negative behaviors, reducing instances of promoting positive outcomes, and interfering with the expression and development of opportunities for resilience. The

“VOLANTIN” program provides intervention strategies focused on visualizing the positive aspects of children and promoting in them the development of capacities that make up resilience, which is reflected in the results of this work. Working on resilience allows for improving developmental trajectories in this highly vulnerable population, giving them not only an opportunity for better mental health but also individual and relational tools that provide a better quality of life.

In our study, the small sample size and the lack of a control group that would allow for greater external validity of the results are important limitations to consider. In addition, the children in SCAR received individual interventions during the time in which the “VOLANTIN” program was implemented. These limitations should be seen as possible focuses or prospects for future research.

## Conclusion

The implementation of the resilience promotion program “VOLANTIN” showed favorable results regarding increased resilience and self-concept and decreased emotional symptoms in children in SCAR and offers a potential intervention tool for institutionalized children.

## Ethical Responsibilities

**Human Beings and animals protection:** Disclosure the authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community.

**Data confidentiality:** The authors state that they have followed the protocols of their Center and Local regulations on the publication of patient data.

**Rights to privacy and informed consent:** The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the correspondence author.

## Conflicts of Interest

Authors declare no conflict of interest regarding the present study.

## Financial Disclosure

Authors state that no economic support has been associated with the present study.

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