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5 **Exploring the Short-term Effects of the Strengthening Families Program on Brazilian**
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8 **Adolescents: a Pre-experimental Study**
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Abstract

Substance abuse and violence are among the primary health concerns regarding Brazilian adolescents. This study sought to explore the short-term effects of the Strengthening Families Program (SFP 10-14), a preventive program for families with adolescents, adapted to Brazil. A pre-experimental design was used, with a pretest and 10-12-month follow-up evaluation. A qualitative study was carried out using in-depth interviews held one to three months after the intervention to examine the use of skills learned. The sample included 126 adolescents (pre-test and follow-up comparison) and 23 adolescents (interviews) between 10 and 14 years of age from low-income families residing in northeastern Brazil. The comparison between pretest and follow-up showed an increase in learning self-efficacy and school absence without parental permission. Null effects were found on the consumption of alcohol in the last month; episodes of binge drinking in the last month; antisocial behavior; parenting practices regarding emotional support factors, intrusiveness, and behavior supervision; future time perspective; doing homework; grade repetition; school grades; school dropout; and satisfaction with one's relationship with school. The majority of the interviewed adolescents reported applying the learned skills during family interaction and with friends. Future studies should examine the contexts and mechanisms linked to such mixed results.

Key words: prevention; family-based intervention; effectiveness; adolescent health; parenting practices.

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3 Substance abuse, violence, and risky sexual behavior are among the main concerns when
4 it comes to adolescent Brazilians' health. A 2012 study of 109,104 adolescents in the 9th grade
5 in public and private schools throughout Brazilian indicated that 22.3% had already
6 experimented with tobacco, 21.8% had experienced an episode of drunkenness, and 7.3% had
7 experimented with an illicit drug (Brazilian Institute of Geography and Statistics, 2012). A high
8 mortality rate resulting from external causes (homicide and accidents) has been detected among
9 Brazilian students, especially blacks, males, and inhabitants of suburbs of large urban centers
10 (Waiselfisz, 2014). Similarly, the findings of national studies of teen pregnancy consistently
11 indicate its association with low social-economic and educational indicators, such as functional
12 illiteracy (Martins, Pontes, Paranhos Filho & Ribeiro, 2014), grade repetition, school
13 dropout (Nery, Gomes, Barros, Gomes, Fernandes, & Viana, 2015), financial dependency, low
14 family income (Caminha, Costa, Brasil, Souza, Freitas, & Damasceno, 2012; Nery et al., 2015),
15 and being black (Caminha et al., 2012). Furthermore, it was not uncommon for adolescents who
16 abandoned school because of pregnancy to have mothers who had also had a teen pregnancy
17 and had to interrupt school, a mechanism that perpetuates poverty (Nery et al., 2015). The need
18 to implement and promulgate preventive public policies in Brazil based on the integrity and
19 reduction of inequities in health is clear.
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42 Interventions seeking to develop family protective factors constitute one possible
43 preventive path for these adolescent health problems (Mejía et al., 2019). In 2013, the Brazilian
44 Ministry of Health, aiming to prevent drug abuse, adopted an evidence-based, family-focused
45 prevention program, Strengthening Families 10-14 (SFP 10-14), to offer to low-income
46 families who were target group of basic social protection policy services. The Ministry of
47 Health wanted to examine the viability of SFP 10-14 as an evidence-based prevention strategy
48 to be included in the suite of instruments of the National Drug Policy (Brazil, National
49 Secretariat for Drug Policies, 2005), in effect in Brazil at the time of the adoption of SFP
50 10-14.
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3 SFP 10-14 was developed in the United States (Kumpfer, Molgaard, & Spoth, 1996) and
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5 later adapted for use in Europe (Allen, Coombes, & Foxcroft, 2007; Ortega, Giannotta, Latina,
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7 & Ciairano, 2012; Pérez et al., 2009; Skärstrand, Larsson & Andréasson, 2008; Stolle et al.,
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9 2011) and Latin America (Correa, Zubarew, Valenzuela, & Salas, 2012; Mejía, Ulph, &
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11 Calam, 2014; Orpinas et al., 2014; Vasquez et al., 2010). The program, based on models of
12
13 resilience, social ecology of substance abuse in adolescents, and family systems (Kumpfer,
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15 2014), aims to strengthen life skills in adolescents, parenting skills, and family bonds (Kumpfer
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17 et al., 1996). Parents and children participate in seven regular two-hour meetings, with
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19 each meeting consisting of one-hour of separate sessions and a one-hour joint session.
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24 Evidence from United States samples found positive effects on school (Spoth, Randall,
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26 & Shin, 2008), parenting (Coatsworth et al., 2010; Coatsworth et al., 2015), risky sexual
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28 behavior (Spoth, Clair, & Trudeau, 2014), and drug outcomes (Spoth, Redmond, &
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30 Lepper, 1999). Positive impacts were also found in the form of betterment of family
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32 communication and emotion regulation with Panamanian parents (Mejía et al., 2014),
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34 reduction of coercive and permissive parenting practices in Chilean parents (Correa,
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36 Zubarew, Valenzuela, & Salas, 2012), increased peer pressure resistance in Peruvian
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38 adolescents (Secretaría General de la Comunidad Andina, 2013), and decreases in
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40 aggressiveness and antisocial behaviors, improvement in the quality of family
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42 relationships, and diminishment of stress in Puerto Rican parents (Chartier, Negroni, &
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44 Hesselbrock, 2010). In contrast, evidence from more recent European studies revealed
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46 null effects on the use of alcohol, tobacco (Baldus et al., 2016; Foxcroft, Callen, Davies,
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48 & Okulicz-Kozaryn, 2017; Skärstrand, Sundell, & Andréasson, 2013), and marijuana
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50 (Baldus et al., 2016) as well as youth behavioral problems (Baldus et al., 2016; Foxcroft et al.,
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52 2017), parenting skills, and parent-child relationship quality (Foxcroft et al., 2017).
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3 As such, the effectiveness findings of SFP 10-14 from culturally adapted versions have
4 tended to be more positive in Latin America (in qualitative and quasi-experimental designs) –
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6 consistent with the initial North American studies – while the absence of effects has been
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8 recurrent in European studies (in randomized controlled trial designs). Further studies of the
9
10 effects of culturally adapted versions of SFP 10-14 are clearly necessary. The present
11
12 study aimed to contribute in this direction by exploring the effects of a culturally adapted
13
14 version of this program to Brazilian adolescents and families. This study is part of a
15
16 larger study contracted by the National Drug Policy Secretariat designed to investigate the
17
18 effectiveness, quality of implementation and social validity of SFP 10-14 for Brazilian
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20 families and adolescents (Figure 1).
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26 Insert: Figure 1. Logical model for the evaluation of SFP 10-14 in Brazil.
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28 The objective of this study is to explore the short-term effects of SFP 10-14 according to
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30 the perception of adolescents. Specifically, it is aimed at evaluating, through a comparison of
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32 the pretest and 10-12-month follow-up, the effects of the intervention on the consumption of
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34 alcohol, tobacco, marijuana, inhalants, cocaine, and crack in the last month; antisocial behavior;
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36 academic performance; and school dropout (primary outcomes) as well as parenting skills; self-
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38 efficacy for learning; school engagement; and future time perspective (secondary outcomes).
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40 The long-term outcomes predicted in Figure 1 were considered primary outcomes, while
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42 the short- and medium-term outcomes were taken as secondary outcomes. Furthermore, it
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44 sought to evaluate to what extent the adolescents used the skills learned in the intervention in
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46 their day-to-day lives.
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51 **Method**

53 **Design**

54 The initial plan for this study comprised a quasi-experimental design with a control group
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56 paired with follow-up assessments at 6 and 12 months. However, implementation challenges
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3 hampered the recruitment and retention of participants, resulting in high attrition and
4 differential loss between participants in the experimental and control groups. As a result, in
5 order to prevent clearly biased comparisons that could mistakenly inform political decision-
6 making, it was decided to disregard data from the control group and make use of a pre-
7 experimental design with quantitative pretest evaluation and 10-12-month follow-up.
8 Thus, this study was taken as an exploratory study, whose findings could inform
9 randomized control trials later (Levati et al., 2016). The outcomes selected for evaluation
10 were chosen consensually by the research team and stakeholders associated to the
11 National Drug Policy Secretariat and the Ministry of Health, when designing the study.
12 For this, available evidence was considered (Kumpfer, Sheier, & Brown, 2018) and
13 relevance to the National Drug Policy (Brazil, National Secretariat for Drug Policies, 2005),
14 in effect in Brazil during the design of this study.

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An associated qualitative study was carried out through in-depth interviews conducted
between one week to three months after the intervention. These interviews examined the
extent to which adolescents practiced skills learned in the intervention. It was, therefore, the
evaluation of a process evaluation criterion, the use of resources recommended in the
intervention, also denominated as the received dose (Steckler & Linnan, 2002). Other
process evaluation indicators were evaluated and reported in another publication (Murta et
al., in press).

Participants

One hundred and twenty-six adolescents participated in the comparison between pretest and
10-12-month follow-up. The participants and families were from three northeastern
Brazilian states: Pernambuco (62), Rio Grande do Norte (40), and Sergipe (23). The sample
was 54% male, 46%female, with an average age of 11.5 years (SD = 1.3). The majority of
participants came from families receiving government income support (75%) and lived with
two adults (60%). Approximately one third (36%) of the participants did not know their

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3 mother's (or female legal guardian's) education level. Among those who did, about 50%
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5 reported that their mothers had completed primary school (46%).
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8 Data was first collected from 361 children and adolescents in the pretest, one week before
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10 the program started. There was a significant decrease in the number of participants by the time
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12 of the 10-12-month follow-up data collection, with a sample loss of 65% (235). Part of this was
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14 due to the interruption of the program implementation at some locations, causing the loss of 64
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16 (18%) children and adolescents. Furthermore, 171 (47%) participants failed to appear for the
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18 follow-up instrument application.
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21 The following inclusion criteria were adopted for this study: joint participation of the
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23 child/adolescent and at least one parent/legal guardian; families with adolescents between
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25 10-14 years of age; present at the two evaluations – the pretest and 10-12-month follow-up;
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27 and being users of public services for economically disadvantaged families. The exclusion
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29 criteria were children/adolescents participating in other evidence-based prevention programs
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31 for drug abuse; families in situations of rights violations; families with children/
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33 adolescents having problematic drug use and in need of treatment; and families with
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35 parents unavailable to accompany the adolescent through the intervention.
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40 A subsample of 23 children/adolescents participated in the in-depth interviews. They were
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42 between 10 and 14 years of age, with an average of 11.22 years ($SD = 1.06$) and the majority
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44 were female (65.2%).
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46 **Intervention**

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48 The Brazilian adaptation of SFP 10-14 was called *Programa Familias Fortes* (Strong
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50 Families Program). The cultural adaptation process comprised the following stages:
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52 (Menezes, 2017): (a) translation of the intervention manual from the British version into
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54 Portuguese and dubbing in Portuguese of videos that comprise the intervention material
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56 (actors and scenarios of the British version were preserved); (b) pre-pilot implementation of
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58 the intervention with
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3 eight intervention groups in the Federal District to survey needs for cultural adaptation
4 (Murta, Nobre-Sandoval, Pedralho, Tavares, & Ramos, 2018), (c) adaptation of the surface
5 structure of the intervention according to the findings in the study carried out in the
6 previous stage, (d) training of facilitators in accordance with the adapted version of the
7 intervention, (e) pilot implementation of the adapted intervention in the Federal District and
8 subsequent revision of the manual and training, (f) dissemination of the intervention to four
9 states in the country, in addition to the Federal District, (g) improvements in the
10 intervention manual resulting from monitoring the implementation experiences of those
11 states, (h) workshop for a new wave of adaptation with supervisors and facilitators from
12 each state that implemented SFP 10-14, (i) work group with managers from the Ministry of
13 Health and the National Secretariat for Drug Policy and researchers for improvements in
14 the intervention and training manual, and (j) implementation of the improved version in
15 northeastern Brazilian states, the target context of this study.

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33 The SFP 101-14 was implemented mostly in Social Assistance Centers (SAC, a
34 public service for basic social protection to assist families in vulnerable situations) and Basic
35 Health Care Units (BCU, a public service for primary health care) as a preventive
36 strategy of the National Anti-Drug Policies (Brazil, National Secretary of Anti-Drug Policies,
37 2005), then in force in the country. Social workers, psychologists, pedagogues, and
38 professionals with other undergraduate training worked, in most groups, as facilitators or
39 were responsible for implementing SFP 10-14. Training and supervision of
40 facilitators was conducted by the Oswaldo Cruz Foundation. The professionals
41 received 16 hours of training over two consecutive days focused on the national
42 policy guidelines for drug prevention, risk and protective factors for adolescent health
43 protection, the conceptual foundations of SFP 10-14, its format, procedures, and materials
44 used.

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3 The dissemination of SFP 10-14 was carried out via meetings with parents, home visits,
4 and phone calls to parents and the community seen by the service where a particular
5 implementation was based. The facilitators invited the contacted families to an initial meeting,
6 called the sensitization meeting, where SFP10-14 was presented in detail. The facilitators
7 conducted the meeting, inviting the researchers to present the study to the families and inviting
8 them to participate. After ethical explanations, the families who agreed to participate were
9 enrolled in the study
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19 As specified in the original intervention (Molgaard, Kumpfer, & Fleming, 2007), SFP
20 10-14 was implemented in Brazil with seven two-hour regular sessions. The first hour consisted
21 of two separate hour long sessions –one for parents and the other for adolescents – while the
22 second hour was a joint family meeting. The intervention content covered authoritative
23 parenting practices, support for the adolescents’ dreams, family values, admiration for family
24 members, assertive and empathetic communication, regulation of emotions, stress management,
25 leisure in the family, friendship quality, assertive peer resistance, and community resources.
26 Two facilitators led the adolescent session, and two others the parent session. Where feasible,
27 children under 10 years of age were provided with a caretaker as part of an effort to boost
28 retention.
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42 The implementation adopted a descriptive manual of objectives, procedures, and
43 materials (Brasil, Ministério da Saúde, 2014). It was adapted for Brazil after an initial cultural
44 adaptation needs assessment (author omitted for blind review). The program specifies the use of
45 routine scenes of family life to trigger the discussion of themes connected to the challenges of
46 adolescence for parents and children. Brazil used dubbed (in Portuguese) videos from the
47 United Kingdom adaptation (Allen et al., 2007). At the end of each one of the seven meetings,
48 the participants were offered a snack, sponsored by the local city hall, to stimulate socialization
49 between the families. Booster sessions between three and twenty-four months after the
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3 intervention are also specified in the original intervention and were offered to 18% to 33% of
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5 the groups in the three states where the research was conducted.
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7 8 **Instruments**

9 10 **Use of alcohol, tobacco, marijuana, inhalants, cocaine, and crack**

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12 The pattern of drug use was assessed through an instrument created by the World Health
13 Organization (Smart et al., 1980) used in previous national epidemiological studies of drug use
14 in adolescents (Carlini et al., 2010). Seven questions about drug use (alcohol, tobacco,
15 marijuana, cocaine, inhalants, and crack) in the last month and heavy alcohol use were
16 employed.
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23 24 **Antisocial behavior**

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26 The Inventory of Aggressive or Destructive Behavior Reported by the Adolescent
27 (Bringas, Herrero, Cuesta, & Rodríguez, 2006) was adapted to the present study and used to
28 assess the frequency of antisocial behaviors presented by the adolescents in the last six months.
29 It consists of ten items (e.g., “took things that were not yours without permission”) grouped
30 into a single factor. The adolescent is asked to indicate the frequency on a five-point Likert
31 scale varying from never to frequently. (Cronbach’s $\alpha = 0.87$).
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40 41 **Academic Performance**

42 School performance was assessed with two questions: “In general, how are your grades
43 in school currently?” (Answer options: low, average, high) and “Did you fail last year?”
44 (Answer options: no; yes). These questions were adapted from the System of Evaluation of
45 Basic Education (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira, 2009).
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51 52 **School Dropout**

53 A question extracted from the System of Evaluation of Basic Education was used (Instituto
54 Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira, 2009). The child/adolescent was
55 invited to say if the youth had dropped out of school during the academic year and stayed out
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3 of school for the remainder of it, with answer options of (a) yes, (b) no, (c) no, school was not
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5 in session.
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7 **Parenting Practices**

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10 Parenting practices were assessed using the Parenting Practices Scale (PPS) of Teixeira,
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12 Oliveira and Wottrich (2006). A version adapted for this study was used after semantic
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14 validation with children and adolescents in vulnerable contexts. It consists of 16 items in three
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16 factors: behavior supervision (Cronbach's $\alpha = 0.74$; for instance, *My parents try to find out*
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18 *wherego when I leave home*), intrusiveness (Cronbach's $\alpha = 0.77$; for instance, *My parents have*
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20 *a say in everything I do*), and emotional support (Cronbach's $\alpha = 0.87$; for instance, *My parents*
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22 *find time spend with me and we do something nice together*).
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26 **Self-efficacy for learning**

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28 The self-efficacy for self-regulated learning factor of the Children's Self-Efficacy Scale-
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30 CSES-Br (Bandura, 2006), adapted to Brazil by Freitas (2011), was used. It has nine items
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32 (Cronbach's $\alpha = 0.81$; for example, *studying even when there are other, more interesting things*
33
34 *to do*). An alteration was made to the response scale for this study, a 5-point scale, varying from
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36 "I definitely can't do it" to "I can definitely do it" was used.
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40 **School Engagement**

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42 School engagement was assessed with three questions: (a) has the child/adolescent
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44 skipped classes or school days in the last 30 days, without parent/guardian permission? If so,
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46 how many times? (response options: from "no" to "more than 5 days") (Instituto Brasileiro de
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48 Geografia e Estatística, 2012); (b) engagement in school tasks (response options vary from
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50 "never" to "always") (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio
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52 Teixeira, 2009); and (c) satisfaction with school (response options: from "hate it" to "love it")
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55 (created for this study).
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Future Time Perspective

Future perspective was assessed with a question extracted from the Permanent System of Evaluation of Basic Education questionnaire from the state of Ceará (Secretaria da Educação do Ceará, 2010). The child/adolescent was requested to indicate post-high school intentions via a multiple-choice question with the options: (a) enter university, (b) take a technical course, (c) just work, or (d) do not know yet.

Use of learned skills

The Adolescent In-Depth Interview Script, used to evaluate the adolescents' use of skills learned in the intervention, consisted of three parts. The first has four general questions about participants' perceptions of the SFP 10-14 experience. The second contains five questions about the transference of learned skills to the adolescents' interpersonal relationships in school, family, dating, and friendship contexts. The third and last includes four questions about difficulties in using the content learned during SFP meetings 10-14 in everyday life. The instrument contained an image for each context of the practice investigated - school, family, dating and friendships - for customization at the adolescents' developmental level.

Procedures

Data Collection

The core team from the University of Brasilia organized the research. This team was responsible for determining the data collection instruments, researcher training, coordination with federal managers, and the implementation team. For each participating state (Pernambuco, Rio Grande do Norte, and Sergipe), there was a supervising researcher who managed the local implementation teams and field researchers to facilitate the data collection. The field researchers were properly trained regarding the conceptual, instrumental, and ethical dimensions of the research procedures. The supervising researchers established a virtual meeting with the field researchers to supervise data collection.

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3 Data collection was carried out in two waves, in 2016 and 2017, with follow-ups in the
4 subsequent years. Each intervention group, consisting of approximately 10 families, was
5 accompanied by a team of two researchers in charge of presenting the study to the participants
6 and carrying out the data collection of the pretest, post-test, and 6-month and 10-12-month
7 follow-ups (the intermediate assessments are out this manuscript's scope). Field events that
8 competed with data collection, such as festivities and school holidays, led to data collection at
9 10-12 months, rather than a single point in time. The researchers accompanied 10 intervention
10 groups in Rio Grande do Norte, 16 in Pernambuco and 9 in Sergipe.
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21 Contact with implementation teams was handled mainly through the supervising
22 researchers, who organized the groups' schedules and the field researchers' scales for following
23 the intervention groups. Afterward, it was up to the field researchers to initiate contact with
24 each group's facilitator to organize the first field trip, which should happen one week before
25 the beginning of each group.
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33 One week before the first intervention, a sensitization meeting was carried out. In this,
34 the SFP 10-14 and the study were introduced to the children, adolescents, and legal guardians.
35 The participants were then duly informed of their rights as well as the purpose and stages of the
36 study. A three-minute video was used as a secondary resource to inform participants about the
37 voluntary nature of their participation, research objectives, right to cease participating at any
38 moment, joint data analysis, preservation of the participants' anonymity, anonymity of
39 participants in publications, access to results, data usage, and potential risks and benefits.
40 Finally, the Terms of Consent (for adult participants) and the Terms of Agreement (for children
41 and adolescents) were signed by those who agreed to participate in the study.
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54 While the pretest was performed at the SAC or BCU where the intervention took place,
55 the 10-12-month follow-up was carried out mostly at the adolescents' homes or schools. This
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3 was done in an effort to include as many of the adolescents as possible since some of them no
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5 longer attended the same SAC or BCU.
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8 The in-depth interviews were carried out between one and three months after the
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10 intervention ended. The majority took place the SAC or BCU where the intervention was hosted,
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12 while the minority took place in the adolescents' homes. The interviews were audio-recorded
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14 for later transcription.
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16 **Data Analysis**

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18 Analysis of the scale data and the questionnaires was carried out using inferential and
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20 descriptive statistical techniques. Techniques to handle missing data were evaluated; however,
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22 it was not possible to identify the missingness mechanism (Rubin, 1976) and the attrition was
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24 very high. Because of this, it was decided to not treat missing data and a per-protocol
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26 approach was used in data analysis, bearing in mind the interpretative limitations of the
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28 results (Jakobsen, Gluud, Wetterslev, & Winkel, 2017). The comparison between the two
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30 evaluations was carried out using the paired *t*-test and Cohen's *d* (Cohen, 1988) for
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32 quantitative outcomes. For ordinal and binary outcomes, the Wilcoxon signed-rank test and
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34 McNemmar's test were employed. Cohen's *r* and odds ratio were used as measurements of
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36 size and effect (Fritz, Morris, & Richler, 2012). Hierarchical linear growth models
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38 (Raudenbush & Bryk, 2002) were used in the study of associated variables and quantitative
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40 outcomes over successive time points. The significance adopted for all the statistical tests was
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42 5% and the analysis was performed with the statistical package R (<https://cran.r-project.org/>).
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49 Interview reports were transcribed and analyzed using content analysis. Categories were
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51 created based on (1) the contexts in which skills learned in the intervention were used, including
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53 family, school, friendship, and personal growth; (2) not using the skills; and (3) negative
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55 impacts perceived as a consequence of the intervention.
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58 **Ethical Aspects**

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3 This study was approved by the Committee for Ethics in Human Sciences of the
4 University of Brasilia (CAAE 53103516.1.0000.5540).
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7 8 **Results**

9 10 **Primary outcomes**

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12 Table 1 compares the pattern of alcohol (including binge drinking), tobacco, inhalant,
13 marijuana, and cocaine use in the last month between the pre-test and the 10-12-month follow-
14 up. Except for alcohol use, the percentage of adolescents who reported the use of drugs in the
15 last month before the intervention and the follow-up was quite low, less than 3%. A slight
16 increase in the percentage of participants reporting alcohol use in the last 30 days and binge
17 drinking was observed in the 10-12-month follow-up. Nevertheless, the differences were not
18 significant ($p > 0.05$). The odds-ratio for alcohol consumption in the last month, from the 10-12-
19 month follow-up to the pretest, is 1.6. In other words, the chance of the individual consuming
20 alcohol during the last month before the follow-up was 1.6 times the odds of this consumption
21 at the pre-test. For excessive drinking and binge drinking episodes in the last month, the odds
22 ratio is 1.13.
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38 Table 1 here
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40 Similarly, the comparison among the other primary outcomes and antisocial behavior
41 (Table 2), school performance (grades and approval), and school dropout (Table 4), in the pre-
42 test and 10-12-month follow-up showed no significant change ($p > 0.05$).
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47 Table 2 here
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49 **Secondary Outcomes**

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51 The means of the pre-test and follow-up regarding secondary outcomes of learning self-
52 efficacy and parenting practices are shown in Table 2. A significant difference for learning self-
53 efficacy was found ($p < 0.05$), with an effect-size from small to moderate, while for the other
54 variables no significant differences were found ($p > 0.05$). Mean comparison reveals that the
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3 direction of the change was as expected, except for the intrusiveness factor, which presents a
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5 higher mean in the follow-up.
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8 From adjustment of the linear growth models, it was verified that the effect-time was
9
10 significant when the dependent variable is self-efficacy, and only for this variable was there a
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12 positive and significant effect from the number of sessions, that is, the higher the attendance,
13
14 the higher the self-efficacy presented by the adolescents. Effects regarding age, gender, and
15
16 family composition were significant for the variable antisocial behavior. It was verified that
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18 older and male participants presented, on average, higher levels of antisocial behavior, while
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20 adolescents living with two legal guardians presented lower levels. For variable emotional
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22 support, age was significant: the older the participant, the lower the perception of parental
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24 support (Table 3).
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28 Table 3 here
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31 Table 4 describes comparative data between school engagement (missing school without
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33 parental authorization, engagement in homework, and satisfaction with school) and plans for
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35 the future, before and at the 10-12-month follow-up. The comparative analysis between these
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37 outcomes revealed a lack of significant change ($p > 0.05$), except for missing school without
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39 parental authorization, which was significantly higher in the follow-up ($p < 0.05$).
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42 Table 4 here
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44 **In-depth Interviews**

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46 Among the 23 interviewed adolescents, 15 (65%) reported using the skills learned in the
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48 intervention, while 8 (35%) reported not using these skills. No adolescent reported negative
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50 impacts as a consequence of participating in the intervention. The contexts for using the skills
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52 learned in the intervention were, from most to least common: family (31 reports), friendships
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54 (26 reports), personal growth (17 reports), and school (5 reports).
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3 The reports about the use of skills in the family context consisted of communication with
4 parents, such as telling them about experienced events, asking for help, listening to them, and
5 negotiating interests (13 reports); following rules and limits (7 reports); helping with household
6 chores (7 reports); and praising the family (4 reports). The reports about the use of skills in the
7 context of friendships included sharing the experience of the intervention with friends, such as
8 talking about the learning experienced and inviting others to participate (16 reports); resisting
9 peer pressure to use drugs, break rules, and commit petty theft (8 reports); and making new
10 friends (2 reports). Under personal growth skills, participants reported future plans (7 reports),
11 non-specific learning (6 reports), self-efficacy (3 reports), and dealing with stress (1 report).
12 Finally, the reports about applying the skills at school consisted of improved school engagement
13 or performance (3 reports) and helping classmates (2 reports).
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29 **Discussion**

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31 This study explored short-term effects of SFP 10-14 according to the perception of
32 Brazilian adolescents. Although the majority of interviewed adolescents reported practicing
33 skills learned in the intervention one to three months after the end of the intervention,
34 especially in the family context, these results were not captured by the quantitative evaluation
35 in most of the evaluated outcomes, when comparing pre-test and follow-up of 10-12
36 months. The comparison between pretest and follow-up showed an increase in learning
37 self-efficacy and school absence without parental permission. In addition, there were null
38 effects on substance use, antisocial behavior, authoritative parenting practices, future time
39 perspective, school dropout, academic performance (grades and failing), and school
40 engagement (doing homework and satisfaction with school). The absence of significant
41 change in drug abuse can be, at least in part, explained by the low number of cases of
42 adolescents who reported using drugs in the pre-test, which seems to be associated with the
43 low risk for younger ages, as also reported in other studies (Kumpfer et al., 2018). While the
44 absence of change in the outcome of drug use
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3 can be seen positively in this scenario, the absence of change in the outcome of parenting
4 practices, which are changeable in the short term, contradicts the SFP 10-14 theory of change
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6 (Kumpfer et al., 2018).
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10 The null effects identified in the present study are in agreement with findings coming
11 from European studies that assessed the short-term effects of culturally adapted versions of
12 SFP 10-14 on patterns of drug use (Baldus et al., 2016; Foxcroft et al., 2017; Skärstrand et al.,
13 2013), youth behavioral problems (Baldus et al., 2016; Foxcroft et al., 2017), and parenting
14 practices (Foxcroft et al., 2017). On the other hand, this study's null effects for parenting
15 practices oppose the evidence from studies with North American samples (Coastworth et al.,
16 2010; Coastworth et al., 2015) and Latin samples (Chartier et al., 2010; Correa et al., 2012;
17 Mejía et al., 2015), which indicated positive impacts of SFP 10-14 on parenting practices.
18 Next, the findings regarding the family environment in Latin studies (Orpinas et al., 2014;
19 Mejía et al., 2015; Vasquez et al., 2010) are consistent with the results of the interviews with
20 adolescents in this study. The majority of interviewed adolescents reported daily use of the
21 skills learned in the intervention, most prominently within the family. In addition, the type of
22 skills practiced with parents, friends, and for personal growth is similar to the protective
23 processes addressed in the intervention, such as family communication, resisting peer pressure,
24 and planning for the future. However, these findings were not corroborated in the quantitative
25 assessments when comparing pre-test and follow-up. These contrasting findings indicate a
26 need to carry out further studies.
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49 The only positive result found in the quantitative assessment comparing pre-test and
50 follow-up was an increase in learning self-efficacy. The positive findings for learning self-
51 efficacy are similar to international findings that indicated positive effects of SFP 10-14 on
52 other variables in the school domain, such as school engagement and academic success
53 (Coombes, Allen, & McCall, 2012; Spoth et al., 2008). Previous studies that evaluated the
54 effects of SFP 10-14 on academic self-efficacy have not been found, which prevents
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3 comparison on this specific outcome. However, it is known that longitudinal studies on SFP
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5 10-14 point out school outcomes as relevant, from a developmental point of view, because
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7 they are associated with more positive trajectories, especially in high school (Kumpfer et al.,
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9 2018). The improvement in learning self-efficacy and its potential impact on the process of
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11 formal schooling gains relevance in the face of the vulnerable conditions in which Brazilian
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13 children and adolescents live, especially the participants of this study, who inhabit one of
14
15 the most impoverished Brazilian regions (Soares, Souza, & Silva, 2016). Given that functional
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17 illiteracy and interruption of school life have been identified as risk factors for unintended
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19 pregnancy as well as perpetuating poverty (Martins et al., 2014; Nery et al., 2015), it is quite
20
21 possible that learning self-efficacy improvement could become a mitigating factor for the
22
23 risk of school dropout and enable more positive academic trajectories. The present study
24
25 does not have an answer to this question. Nonetheless, given the social-economic and
26
27 educational inequities that threaten Brazilian adolescents' health and the small number of
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29 studies having investigated and demonstrated SFP 10-14's efficacy in the school domain,
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31 findings such as academic self-efficacy improvement make up the main contribution of the
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33 present study.
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40 The conflicting result between the boost to academic self-efficacy and missing school
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42 without parental authorization is noteworthy. While the first is consistent with the mechanisms
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44 of change addressed in the intervention, the latter runs counter to it. It is possible that some
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46 contextual event, such as community parties or barriers regarding public transportation, may
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48 have influenced missing school without parental authorization. A scale with 9 items was used to
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50 assess academic self-efficacy through self-evaluation, but there was only a single question to
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52 assess school absences. Thus, the assessment of academic self-efficacy is presumably more
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54 robust than that of missing school without parental authorization. Thus, caution in the
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56 interpretation of these findings and further studies capable of elucidating these inconsistent
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58 results in the school domain are both recommended.
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3 Failures in replicating the effects of SFP 10-14 have been discussed in recent years
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5 (Burkhart, 2015; Gorman, 2017; Kumpfer et al., 2018). Kumpfer et al. (2018) presented a set
6
7 of possible explanations for the failure to replicate SFP 10-14 to new contexts, including errors
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9 in choosing the program in view of the families' level of risk; offering a lower "dosage" than
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11 the original program, selection of poorly motivated facilitators; insufficient training; integrity
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13 and adherence impaired in the offer of the program; lack of cultural sensitivity in adapting the
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15 program; and flaws in the assessment, including design, assessment tools and statistical
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17 analysis. In the present study, at least four possibilities can be raised that could explain the
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19 absence of effects on the greater part of the outcomes.
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24 First, one could question whether the program's mechanisms act in a manner compatible
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26 with the needs, risk and protective factors, and context of Brazilian families in vulnerability
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28 situations (Mejía et al., 2019). The use of learned skills, especially in family interactions, up to
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30 three months after the intervention seems to indicate that the intervention's change mechanism
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32 was activated for more than half of the interviewed adolescents (Kumpfer et al., 2018).
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34 However, the non-sustainability of these results at 10-12 months later, with the exception of
35
36 learning self-efficacy, may have exposed some mismatch between the intervention and the
37
38 context. The context has been increasingly recognized as a living agent that interacts and
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40 modifies the intervention, which may facilitate or restrict its effects (Pfadenhauer et al., 2017;
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42 Moore et al., 2019). This study does not provide evidence on how the context of scarce
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44 resources in which SFP 10-14 occurred shaped its effects, with heterogeneous patterns of
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46 results, from null effects to improvement in learning self-efficacy and missing school
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48 without parental permission. Therefore, a better understanding of the relationship between
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50 contexts, mechanisms and outcomes of SFP 10-14 for Brazilian adolescents should await
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52 future research efforts.
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58 Second, implementation gaps may have impaired fidelity and family engagement in the
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60 intervention. Fidelity analyses carried out by *in loco* observation of a sample of intervention

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3 groups identified that sessions were offered for adolescents, parents and families; that the
4 topics provided for in each session were addressed; and that the materials provided were used
5 (Murta et al., in press). Other fidelity indicators related to achieving the session objectives
6 capable of informing whether the intervention functions were achieved have not been
7 evaluated (Hawe, Shiell, & Riley, 2009). Therefore, the absence of this information prevents
8 conclusions about the quality of the intervention offered. In addition, *in loco*
9 observation in these same intervention groups identified a higher occurrence of engagement
10 indicators in parent sessions, followed by family sessions, while adolescent sessions
11 showed a lower occurrence of engagement indicators. These indicators included
12 behaviors that occurred in the session, revealing confidence, interest, satisfaction, social
13 support and transference to life (Murta et al., in press). In this sense, Kumpfer and
14 collaborators (2018) highlight the effect of the facilitators' experience in adhering to SFP
15 10-14. In this study, facilitators were implementing SFP 10-14 for the first time (in 2016) or a
16 second time (in 2017). They were, therefore, inexperienced or little experienced, which must
17 be taken into account.

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38 Third, even though SFP 10-14 has been through multiple waves of cultural adaptation to
39 Brazil (Murta et al., 2018; Menezes, 2017), it is possible that the intervention still lacks
40 cultural sensitivity in the face of the extreme poverty experienced by the participating
41 families. Evidence from another study indicated facilitators considered it excessively
42 structured, inflexible, and decontextualized overall for illiterate parents (Menezes, Nobre-
43 Sandoval, & Murta, 2020). Impaired cultural adaptation can generate resistance in part of the
44 implementation team, as pointed out by Kumpfer et al. (2018). An example of this is the use, in
45 the Brazilian implementation, of the adapted materials, dubbed films and with scenarios
46 and actors from the British version. In the initial study to assess needs for cultural adaptation,
47 such films were not perceived as problematic by parents and adolescents, but were the
48 target of criticism by the
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3 facilitators, who recommended new footage customized to the Brazilian reality (Murta et al.,
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5 2018). However, time and budget constraints prevented such adaptation.
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8 Fourth, failures in assessment may have limited the ability to identify positive (or negative)
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10 changes, should they exist. Evidence suggests that the most significant effects of SPF 10-14
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12 have been identified in long term evaluations (Foxcroft et al., 2003; Kumpfer et al., 2018). It is
13
14 possible that the short-term evaluation (10 to 12 months between pre-test and follow-up) of the
15
16 present study failed to capture such changes. In addition to this, the small sample size may have
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18 impaired the statistical power and prevented the identification of significant effects, if any.
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20 Finally, it is possible that the use of repeated measures in the pre-test and follow-up was a
21
22 potential source of error. Previous experiences in evaluating SFP 10-14 indicate that optimistic
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24 responses that underestimate the level of risk are common in the pre-test (Kumpfer et al., 2018).
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28 This study presents some limitations. First, internal validity was impaired due to the
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30 absence of a control group, high sample loss, and the differential loss of participants. Even if a
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32 quasi-experimental design had been initially considered and the control group data collected,
33
34 the verification that the adolescents who completed the intervention were less exposed to
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36 psychosocial risk factors than those who abandoned it would have led us to disregard such
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38 data for comparison between groups to prevent drawing clearly biased conclusions and
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40 fueling mistaken public policy decisions about the implementation (or de-implementation)
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42 on large scale of evidence-based prevention programs for economically disadvantaged
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44 families in Brazil. Second, the small sample size reduces the study's external validity,
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46 which impedes the extrapolation of the conclusions obtained for other Brazilian adolescents.
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48 With regards to this, implementation challenges had an impact on the initial sample size and
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50 participant retention, including uncertainties about the continuity of the implementation due to
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52 policy changes at the federal level since 2016; difficulties recruiting families fitting the
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54 profile for participation in SFP 10-14; and lack of continuity in local implementation teams,
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56 necessitating the replacement
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3 of facilitators. Thus, the conclusions about the effects of SFP 10-14 derived from this study
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5 must be interpreted as generators of hypotheses to be verified in later studies and be contrasted
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7 with complementary evidence obtained from different informants, such as parents, and
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9 assessment strategies beyond self-reported ones, such as measurement via direct observation
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11 of family interaction.
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14 A broad research agenda can be drawn. The impact assessment of SFP 10-14 could benefit
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16 significantly from designs that identify mechanisms and contexts attached to heterogenous
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18 result patterns. Mapping favorable contexts and inhibitors of the positive effects of the
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20 intervention, as well as their corresponding mechanisms, could inform new waves of cultural
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22 adaptation, identification of contexts presenting greater readiness for adopting the intervention,
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24 and improvements in the implementation process. Findings from this study could be crucial to
25
26 prevent barriers to the program's viability, scalability, and sustainability, even more so if the
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28 program is taken as a tool for public policies focusing on the promotion of and prevention of
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30 damage to adolescent health via, among other dangers, the abuse of drugs. In addition, such
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32 studies could optimize the intervention's implementation and precede effectiveness
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34 assessments with rigorous designs regarding internal validity (Levati et al., 2016) able to give
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36 conclusive answers regarding SFP 10-14's effectiveness in Brazil. Following this, cost-
37
38 effectiveness assessments are recommended to contribute to decision-making around the
39
40 efficient use of public resources. Finally, concurrent with the efforts for more robust SFP
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42 10-14 assessments, investment in the development of nation-wide preventive
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44 innovations customized to Brazilian culture and context are clearly relevant, most importantly
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46 for families and adolescents weakened by social and economic inequities.
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53 **References**

54 Allen, D., Coombes, L., & Foxcroft, D. R. (2007). Cultural accommodation of the
55
56 Strengthening Families Programme 10-14: UK Phase I study. *Health Education Research*,
57
58
59
60

1
2
3 22(4), 547–560. <https://doi.org/10.1093/her/cyl122>

4
5 Baldus, C., Thomsen, M., Sack, P. M., Bröning, S., Arnaud, N., Daubmann, A., & Thomasius,
6 R. (2016). Evaluation of a German version of the Strengthening Families Programme 10-14:
7 a randomised controlled trial. *The European Journal of Public Health*, 26(6), 953–959.
8
9 <https://doi.org/10.1093/eurpub/ckw082>

10
11 Bandura, A. (2006). Guide for constructing self-efficacy scales. In: F. Pajares & T. C. Urdan
12 (Eds.), *Adolescence and education* (Vol. 5, pp. 307-337). Greenwich: Information Age.

13
14 Brasil, Secretaria Nacional de Políticas sobre Drogas (2005). *Política nacional sobre drogas*.
15 Brasília: Presidência da República, Secretaria Nacional de Políticas sobre Drogas.

16
17 Bringas, C., Herreo, F., Cuesta, M., & Rodríguez, F. (2006). La conducta antisocial en
18 adolescentes no conflictivos: Adaptación del Inventario de Conductas Antisociales (ICA).
19 *Revista Electrónica de Metodología Aplicada*, 11(2), 1–10.

20
21 Burkhardt, G. (2015). Is the Strengthening Families Programme feasible in Europe?
22
23 *Journal of Children's Services*. 10(2), 133-150. <https://doi.org/10.1108/JCS-02-2014-0009>

24
25 Caminha, N. D. O., Costa, C. C., Brasil, R. F. G., Sousa, D. M. D. N., Freitas, L. V., &
26 Damasceno, A. K. D. C. (2012). O perfil das puérperas adolescentes atendidas em uma
27 maternidade de referência de Fortaleza-Ceará. *Escola Anna Nery*, 16, 486–492.
28
29 <https://doi.org/10.1590/S1414-81452012000300009>

30
31 Carlini, E. A., Noto, A. R., Sanchez, Z. M., Carlini-Cotrim, M., Locatelli, D. P., Abeid, L. R.,
32 & Moura, Y. G. (2010). VI levantamento nacional sobre o consumo de drogas psicotrópicas
33 entre estudantes do ensino fundamental e médio das redes pública e privada de ensino nas
34 27 capitais Brasileiras – 2010. Retrieved from <http://www.obid.senad.gov.br>.

35
36 Chartier, K. G., Negroni, L. K., & Hesselbrock, M. N. (2010). Strengthening family practices
37 for Latino families. *Journal of Ethnic and Cultural Diversity in Social Work*. 19(1): 1–17.
38
39 <https://doi.org/10.1080/15313200903531982>

- 1
2
3 Coatsworth, J. D., Duncan, L. G., Greenberg, M. T., & Nix, R. L. (2010). Changing parent's
4 mindfulness, child management skills and relationship quality with their youth: Results from
5 a randomized pilot intervention trial. *Journal of Child and Family Studies*, *19*(2), 203–217.
6
7
8
9
10 <https://doi.org/10.1007/s10826-009-9304-8>
11
12 Coatsworth, J. D., Duncan, L. G., Nix, R. L., Greenberg, M. T., Gayles, J. G., Bamberger, K.
13 T., Demi, M. A. (2015). Integrating mindfulness with parent training: effects of the
14 Mindfulness-Enhanced Strengthening Families Program. *Developmental Psychology*, *51*(1),
15 26–35. <https://doi.org/http://dx.doi.org/10.1037/a0038212>
16
17
18
19
20
21 Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2.^a ed.). Hillsdale:
22 Lawrence Erlbaum Associates.
23
24
25
26 Coombes, L., Allen, D., & McCall, D. (2012). The Strengthening Families Programme 10-14
27 (UK): engagement and academic success at school. *Community Practitioner*, *85*(3), 30-33.
28
29
30
31 Correa, V. M. L., Zubarew, G. T., Valenzuela, M. M., & Salas, P. F. (2012). Evaluation of the
32 Program “Strong Families: Love and Limits” in families with teenagers aged 10 to 14 years.
33 *Revista Medica de Chile*, 726–731. <https://doi.org/10.4067/S0034>
34
35
36
37
38 Foxcroft, D. R., Callen, H., Davies, E. L., & Okulicz-Kozaryn, K. (2016). Effectiveness of the
39 Strengthening Families Programme 10–14 in Poland: cluster randomized controlled trial.
40 *The European Journal of Public Health*, *27*(3), 494-500.
41
42
43
44
45 <https://doi.org/10.1093/eurpub/ckw195>
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
60 Foxcroft, D. R., Ireland, D., Lister-Sharp, D. J., Lowe, G., & Breen, R. (2003). Longer-term
primary prevention for alcohol misuse in young people: A systematic review. *Addiction*,
98(4), 397-411. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1046/j.1360-0443.2003.00355.x/pdf>

- 1
2
3 Freitas, M. F. R. L. (2011). *Autoeficácia: evidências de validade de uma medida e seu papel*
4 *moderador no desenvolvimento de dotação e talento*. Master Thesis, Instituto de Ciências
5 Humanas, Universidade Federal de Juiz de Fora, Juiz de Fora/MG
6
7
8
9
10 Fritz, C. O., Morris, P. E., & Richler, J. J. (2012). Effect size estimates: current use, calculations,
11 and interpretation. *Journal of Experimental Psychology*, *141*(1), 2–18.
12
13
14 Gorman, D. M. (2017). The decline effect in evaluations of the impact of the Strengthening
15 Families Program for youth 10-14 (SFP 10-14) on adolescent substance use. *Children and*
16 *Youth Services Review*, *81*, 29-39. <https://doi.org/10.1016/j.childyouth.2017.07.009>
17
18
19
20
21
22 Hawe, P., Shiell, A., & Riley, T. (2009). Theorising interventions as events in systems.
23 *American Journal of Community Psychology*, *43*, 267-276. [https://doi:10.1007/](https://doi:10.1007/s10464-009-9229-9)
24 [s10464-009-9229-9](https://doi:10.1007/s10464-009-9229-9)
25
26
27
28
29 Instituto Brasileiro de Geografia e Estatística (2012). *Pesquisa Nacional da Saúde do Escolar*.
30 Rio de Janeiro: IBGE
31
32
33 Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (2009). *SAEB 2009*.
34 Brasília: INEP. Retrieved from <http://portal.inep.gov.br/microdados>
35
36
37
38 Jakobsen, J. C., Gluud, C., Wetterslev, J., & Winkel, P. (2017). When and how should multiple
39 imputation be used for handling missing data in randomised clinical trials – a practical guide
40 with flowcharts. *BMC Medical Research Methodology*, *162*(17). [https://doi:](https://doi:10.1186/s12874-017-0442-1)
41 [10.1186/s12874-017-0442-1](https://doi:10.1186/s12874-017-0442-1)
42
43
44
45
46
47 Kumpfer, K L. (2014). Family-based interventions for the prevention of substance abuse and
48 other impulse control disorders in girls. *ISRN Addict*, 2014, 308789.
49 <https://doi.org/10.1155/2014/308789>
50
51
52
53
54 Kumpfer, Karol L, Molgaard, V., & Spoth, R. (1996). The Strengthening Families Program for
55 the prevention of delinquency and drug use. *Preventing Childhood Disorders, Substance*
56 *Abuse, and Delinquency*, 241–267. <https://doi.org/10.4135/9781483327679.n11>
57
58
59
60

- 1
2
3 Kumpfer, K. L., Sheier, L. M., & Brown, J. (2018). Strategies to avoid replication failure with
4
5 evidence-based prevention interventions: case examples from the Strengthening Families
6
7 Program. *Evaluation & the Health Professions, 1*(34).
8
9
10 <https://doi.org/10.1177/0163278718772886>
11
12 Levati, S., Campbell, P., Frost, R., Dougall, N., Wells, M., Donaldson, C., & Hagen, S. (2016).
13
14 Optimisation of complex health interventions prior to a randomised controlled trial: a
15
16 scoping review of strategies used. *Pilot and Feasibility Studies, 2*(1), 1–17.
17
18
19 <https://doi.org/10.1186/s40814-016-0058-y>
20
21
22 Martins, P. C. R., Pontes, E. R. J. C., Filho, A. C. P., & Ribeiro, A. A. (2014). Gravidez na
23
24 adolescência : estudo ecológico nas microrregiões de saúde do Estado do Mato Grosso do
25
26 Sul, Brasil. *Epidemiologia e Serviços em Saúde, 23*(1), 91–100.
27
28
29 <https://doi.org/10.5123/S1679-49742014000100009>
30
31
32 Medeiros, P. F. P., Cruz, J. I., Schneider, D. R., Sanudo, A., & Sanchez, Z. M. (2016). Process
33
34 evaluation of the implementation of the Unplugged Program for drug use prevention in
35
36 Brazilian schools. *Substance Abuse Treatment, Prevention, and Policy, 1*–11.
37
38
39 <https://doi.org/10.1186/s13011-015-0047-9>
40
41
42 Mejia, A., Bertello, L., Gil, J., Griffith, J., López, A. I., Moreno, M., & Calam, R. (2019).
43
44 Evaluation of family skills training programs to prevent alcohol and drug use: a critical
45
46 review of the field in Latin America. *International Journal of Mental Health and Addiction*.
47
48
49 <https://doi.org/10.1007/s11469-019-00060-x>
50
51
52 Mejia, A., Ulph, F., & Calam, R. (2015). An Exploration of parents' perceptions and beliefs
53
54 about changes following participation in a family skill training program: a qualitative study
55
56 in a developing country. *Prevention Science, 16*, 674–684. [https://doi.org/10.1007/s11121-](https://doi.org/10.1007/s11121-014-0530-y)
57
58
59
60 [014-0530-y](https://doi.org/10.1007/s11121-014-0530-y)

- 1
2
3 Menezes, J. C. L. (2017). *Adaptação Cultural do Strengthening Families Program (10-14) UK*
4 *para o Brasil*. Doctorate Dissertation, Departamento de Psicologia Clínica,
5 Universidade de Brasília, Brasília/DF.
6
7
8
9
10 Menezes, J. C. L., Nobre-Sandoval, L., & Murta, S. G. (2020). Local adaptations to implement
11 the Strengthening Families Program in northeastern Brazil. *International Journal of*
12 *Mental Health and Addiction*, <https://doi.org/10.1007/s11469-019-00196-w>
13
14
15
16
17 Molgaard, V., Kumpfer, K., & Fleming, E. (2007). *Strengthening families program: for parents*
18 *and youth 10-14 manual*. Ames, Iowa: University Extension, Iowa State University.
19
20
21 Moore, G. F., Evans, R. E., Hawkins, J., Littlecott, H., Melendez-Torres, G. J., Bonell, C. et al.
22 (2019). From complex social interventions to interventions in complex social systems:
23 Future directions and unresolved questions for intervention development and
24 evaluation. *Evaluation*, 25(1), 23–45. <https://doi.org/10.1177/1356389018803219>
25
26
27
28
29
30 Murta, S. G., Vinha, L. G. A., Nobre-Sandoval, L. A., Miranda, A. A. V., Menezes, J. C. L., &
31 Rocha, V. P. S (in press). Feasibility of the Strengthening Families Program for
32 Brazilian families: a mixed method study. *Psicologia: Teoria e Pesquisa*.
33
34
35
36
37 Murta, S. G., Nobre-Sandoval, L. A., Pedralho, M. S., Tavares, T. N. G., Ramos, C. E. P. L.,
38 Allen, D., & Coombes, L. (2018). Needs assessment for cultural adaptation of the
39 Strengthening Families Program (SFP 10-14-UK) in Brazil. *Psicologia: Reflexão e Crítica*,
40 31 (25). <https://dx.doi.org/10.1186/s41155-018-0105-0>
41
42
43
44
45
46
47 Nery, I. S., Gomes, K. R. O., Barros, I. de C., Gomes, I. S., Fernandes, A. C. N., & Viana, L.
48 M. M. (2015). Fatores associados à reincidência de gravidez após gestação na adolescência
49 no Piauí, Brasil. *Epidemiologia e Serviços de Saúde*, 24(4), 671–680.
50
51
52
53
54
55
56 Orpinas, P., Ambrose, A., Maddaleno, M., Vulcanovic, L., Mejia, M., Butrón, B., ... Soriano, I.
57 (2014). Lessons learned in evaluating the Familias Fuertes program in three countries in
58
59
60

1
2
3 Latin America. *Pan American Journal of Public Health*, 36(6), 383–390.

4
5 <https://doi.org/S1020-49892014001100005>

6
7
8 Ortega, E., Giannotta, F., Latina, D., & Ciairano, S. (2012). Cultural adaptation of the
9
10 Strengthening Families Program 10-14 to Italian families. *Child and Youth Care Forum*,
11
12 41(2), 197–212. <https://doi.org/10.1007/s10566-011-9170-6>

13
14
15 Perez, J. M. E., Díaz, S. A., Villa, R. C., Fernandez-Hermida, J. R., Carballo, J. L., & García-
16
17 Rodríguez, O. (2009). Family-based drug use prevention: The “Familias que Funcionan”
18
19 [“Families that Work”] program. *Psicothema*, 21(1), 45–50.

20
21
22 Pfadenhauer, L. M., Gerhardus, A., Mozygemba, K., Lysdahl, K. B., Booth, A., Hofmann, B. et al.
23
24 (2017). Making sense of complexity in context and implementation: The Context
25
26 and Implementation of Complex Interventions (CICI) framework. *Implementation*
27
28 *Science*, 12, 21. <https://doi.org/10.1186/s13012-017-0552-5>

29
30
31 Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models. Applications and data*
32
33 *analysis methods* (second edition). Newbury Park: Sage.

34
35 Rubin, D. B. (1976). Inference and missing data. *Biometrika*, 63(3), 581-592.

36
37
38 Schneider, D. R., Pereira, A. P. D., Cruz, J. I., Strelow, M., Chan, G., Kurki, A., & Sanchez, Z.
39
40 M. (2016). Evaluation of the implementation of a preventive program for children in
41
42 Brazilian schools. *Psicologia: Ciência e Profissão*, 36(3), 508–519.
43
44 <https://doi.org/10.1590/1982-3703000592016>

45
46
47 Secretaria da Educação do Ceará (2010). *SPAECE 2010*. Fortaleza: SEDUC. Retrieved from
48
49 <http://www.spaece.caeduff.net/o-programa/> (43)

50
51
52 Secretaría General de la Comunidad Andina (2013). *Rutas de aprendizaje del Programa*
53
54 *Familias Fuertes : Amor y Límites*. Lima: Secretaría General de la Comunidad Andina.

55
56
57 Skärstrand, E., Larsson, J., & Andréasson, S. (2008). Cultural adaptation of the Strengthening
58
59 Families Programme to a Swedish setting. *Health Education*, 108(4), 287.

1
2
3 <https://doi.org/10.1108/09654280810884179>

4
5 Skärstrand, E., Sundell, K., & Andréasson, S. (2014). Evaluation of a Swedish version of the
6
7 Strengthening Families Programme. *European Journal of Public Health, 24*(4), 578–584.

8
9
10 <https://doi.org/10.1093/eurpub/ckt146>

11
12 Smart, R. G., Arif, A., Hughes, P. H., Medina Mora, M. E., Navarathan, V., Varma, V. K., &
13
14 Wadud, K. A. (1980). *Drug use among non-student youth*. World Health Organization.
15
16 Geneva.

17
18
19 Soares, S., Souza, L., & Silva, F. G. (2016). *Perfil da pobreza: Norte e Nordeste rurais*. IPC-IG
20
21 Working Paper No. 138. Brasília: International Policy Centre for Inclusive Growth

22
23
24 Spoth, R., Redmond, C., & Lepper, H. (1999). Alcohol initiation outcomes of universal family-
25
26 focused preventive interventions: one- and two-year follow-ups of a controlled study.
27
28 *Journal of Studies on Alcohol. Supplement, 13*, 103–111.

29
30 <https://doi.org/10.15288/jsas.1999.s13.103>

31
32
33 Spoth, R., Clair, S., & Trudeau, L. (2014). Universal family-focused intervention with young
34
35 adolescents: effects on health-risking sexual behaviors and STDs among young
36
37 adults. *Prevention Science, 15*(1), 47-58. doi.org/10.1007/s11121-012-0321-2

38
39
40 Spoth, R., Randall, G. K., & Shin, C. (2008). Increasing school success through partnership-
41
42 based family competency training: experimental study of long-term outcomes. *School*
43
44 *Psychology Quarterly, 23*(1), 70–89. <https://doi.org/10.1037/1045-3830.23.1.70>

45
46
47 Steckler, A., & Linnan, L. (2002). Process evaluation for public health interventions and
48
49 research. An overview. Em A. Steckler & L. Linnan (Orgs.). *Process evaluation for public*
50
51 *health interventions and research* (pp. 1-21). San Francisco, CA: Jossey-Bass Publishers.

52
53
54 Stolle, M., Stappenbeck, J., Wendell, A., & Thomasius, R. (2011). Family-based prevention
55
56 against substance abuse and behavioral problems: Culture-sensitive adaptation process for
57
58 the modification of the US-American Strengthening Families Program 10-14 to German
59
60

1
2
3 conditions. *Journal of Public Health*, 19(4), 389–395. <https://doi.org/10.1007/s10389-011->
4
5 0405-7

6
7 Teixeira, M. A. P., Oliveira, A. M., & Wottrich, S. H. (2006). Escalas de Práticas Parentais
8 (EPP): avaliando dimensões de práticas parentais em relação a adolescentes. *Psicologia:*
9
10 *Reflexão e Crítica*, 19(3), 433–441. <https://doi.org/10.1590/S0102-79722006000300012>
11
12

13
14 Vasquez, M., Meza, L., Almandarez, O., Santos, A., RC, Matute, R., Dias, L., ... Saenz, K.
15 (2010). Evaluation of a Strengthening Families (Familias Fuertes) intervention for parents
16 and adolescents in Honduras. *Southern Online Journal of Nursing Research*, 10(3), 1-25.
17
18

19
20 Waiselfisz, J. J. J. J. (2014). *Mapa da Violência 2014: os jovens do Brasil*. Rio de Janeiro:
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
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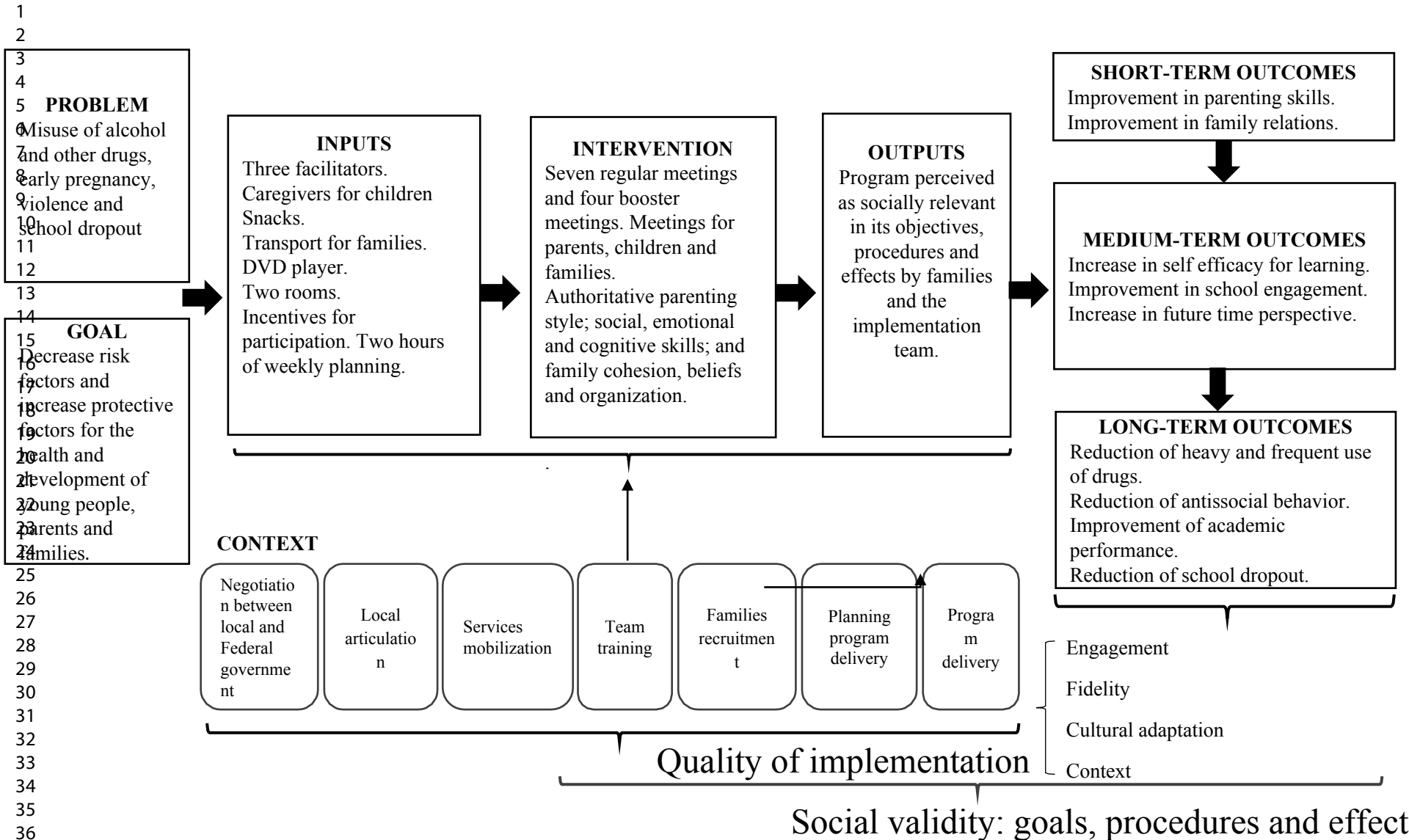


Table 1 Comparison between pre-test and 10-12-month follow-up for outcomes related to the consumption of alcohol and other drugs in the last month (N = 126)

Alcohol	n	%	n	%	<i>p</i>
No	116	94.3%	113	91.9%	0,579
Yes	7	5.7%	10	8.1%	
Total	123				
Binge drinking	n	%	n	%	<i>p</i>
No	113	91.9%	112	91.1%	1,000
Yes	10	8.1%	11	8.9%	
Total	123				
Tobacco/cigarettes	n	%	n	%	<i>p</i>
No	123	99.2%	122	98.4%	-
Yes	1	0.8%	2	1.6%	
Total	124		124		
Inhalants	n	%	n	%	<i>p</i>
No	120	97.6%	121	98.4%	-
Yes	3	2.4%	2	1.6%	
Total	123				
Marijuana	n	%	n	%	<i>p</i>
No	121	98.4%	121	98.4%	-
Yes	2	1.6%	2	1.6%	
Total	123				
Cocaine	n	%	n	%	<i>p</i>
No	121	98.4%	123	100.0%	1.000
Yes	2	1.6%	0	0.0%	
Total	123				

Table 2 Comparison between pre-test and 10-12-month follow-up for the outcomes of learning self-efficacy, antisocial behavior, and parenting practices (N = 126)

	Pre-test		12 months		<i>p</i> *	Cohen's <i>d</i>
	Average	SD	Average	SD		
Learning self-efficacy	3.48	1.14	3.81	0.74	0.003	0.27
Antisocial behavior	1.49	0.67	1.47	0.62	0.811	0.02
Parenting practices						
Emotional support	3.87	1.08	3.91	0.88	0.730	0.03
Intrusiveness	2.54	1.09	2.56	1.14	0.897	0.01
Behavior supervision	3.94	1.17	4.16	1.00	0.067	0.16

* Paired *t*-test

Table 3 Adjustment of linear growth model for learning self-efficacy, antisocial behavior, and parenting outcomes (N = 126)

	Learning self-efficacy	Antisocial behavior	Parenting practices		
			Emotional support	Intrusiveness	Behavior supervision
Time	0.334**	-0.018	0.036	0.015	0.215
Number of meetings	0.084*	-0.008	0.023	-0.054	0.006
Male	0.148	0.249**	-0.032	0.154	-0.008
Age	-0.029	0.043*	0.073**	0.046	-0.004
Family composition (2 parents/guardians)	0.180	-0.174*	0.097	0.004	0.232

* $p < 0.05$ ** $p < 0.01$

Table 4 Comparison between pre-test and 10-12-month follow-up on outcomes related to school life and plans for the future (N = 126)

	Pre-test		12 months		<i>p</i>	Cohen's <i>r</i>
	n	%	n	%		
Absences						
None (0 days)	91	72.8%	80	64.0%	0.019	0.21
1 or 2 days	21	16.8%	16	12.8%		
3 to 5 days	8	6.4%	24	19.2%		
5+ days	5	4.0%	5	4.0%		
Total	125					
Chores						
Never	3	2.4%	2	1.6%	0.642	0.04
Rarely	10	8.0%	8	6.5%		
Sometimes	25	20.0%	30	24.2%		
Most times	14	11.2%	20	16.1%		
Always	72	57.6%	64	51.6%		
Total	124					
School relationship						
Hate	4	3.2%	2	1.6%	0.681	0.03
Dislike	1	0.8%	4	3.2%		
Like a little	32	25.6%	31	25.0%		
Like a lot	44	35.2%	49	39.5%		
Love	42	33.6%	37	29.8%		
Total	123					
Grades						
Low	8	6.7%	6	5.0%	0.287	0.10
Average	56	46.7%	69	57.5%		
High	56	46.7%	45	37.5%		
Total	120					
Drop out						
No	119	94.4%	119	94.4%	1.000	1.00
Yes	7	5.6%	7	5.6%		
Total	126					
Grade repeated						
No	91	74.6%	100	82.0%	0.202	0.55
Yes	31	25.4%	22	18.0%		
Total	122					
Future						
College	61	51.7%	55	46.6%	0.405	-
Technical course	9	7.6%	12	10.2%		
Work	17	14.4%	11	9.3%		
Other	10	8.5%	10	8.5%		
Don't know	21	17.8%	30	25.4%		
Total	118					