Prevention of Antisocial Behavior among Moroccan High School Students: An Experimental Study

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Abstract:

This study investigates the efficacy of a preventive intervention program aimed at reducing antisocial behaviors among adolescents aged 11 to 17 in Moroccan secondary schools. Grounded in the social development model by Hawkins and Weiz (1985), the program targets family, school, and individual domains. Employing a quasi-experimental pretest-posttest design, the study evaluates the program's impact on various risk and protective factors. Statistical analyses, including the Wilcoxon signed-rank test, reveal significant positive outcomes, indicating the program's effectiveness in promoting prosocial behaviors. However, the study highlights limitations such as the exclusion of community-based interventions due to resource and time constraints. Future research should incorporate community-level predictors to enhance the comprehensiveness of prevention strategies. Despite these limitations, the findings advocate for a shift from punitive measures to proactive interventions in Moroccan secondary education. This research contributes to the field of preventive science and lays groundwork for further exploration of intervention strategies in educational contexts.

Keywords: antisocial behavior, social development model, risk factors, protective factors, preventive intervention program

Introduction:

This quasi-experimental study focuses on preventing antisocial behaviors in the context of secondary education in Morocco, aligning with the international trend of implementing preventive systems for young people at risk of engaging in undesirable behaviors like antisocial conduct. This new approach to early intervention is relatively recent; Anglo-Saxon literature reveals that the science of prevention, which serves as the reference framework for preventive interventions, has only emerged over the past three decades.

Specifically, this discipline arose in the 1960s amidst rising morbidity and mortality rates associated with behavioral problems (Catalano et al., 2012). Beyond this historical context, the science of prevention significantly influences research on juvenile delinquency worldwide due to its positive implications for preventing antisocial behaviors (Flynn et al., 2008).

The science of prevention, which informs the design of our preventive action plan, is a field focused on understanding the most effective ways to prevent antisocial behavior through preventive

intervention programs. The effectiveness of these interventions is crucial to researchers and practitioners alike, leading to numerous studies aimed at validating their efficacy through empirical research. These studies have been predominant in prevention science since its early application, offering an alternative to detention and incarceration systems previously utilized by juvenile justice (Dodge, 2001).

Our research endeavors primarily focus on the implementation and assessment of the efficacy of a preventive intervention program designed to mitigate antisocial behaviors prior to their occurrence within the milieu of Moroccan secondary education. This objective inherently necessitated the establishment of a comprehensive theoretical and empirical framework for prevention. Within this framework, we have chosen to adopt the Social Development Model (SDM), a prevailing theoretical paradigm in global prevention initiatives. The SDM is characterized as a comprehensive theory of human behavior aimed at elucidating the developmental trajectories of both antisocial and prosocial behaviors (Catalano et al., 1996; Hawkins et al., 2003).

This theoretical underpinning provides a robust foundation for the design, execution, and assessment of preventive intervention strategies targeting antisocial behaviors such as substance abuse, alcohol consumption, and various forms of violence (Hawkins & Weiz, 1985). Noteworthy examples of such prevention endeavors include the Seattle Social Development Project (SSDP) and its subsequent extension, Raising Healthy Children (RHC), alongside the Guiding Good Choices Project and the Communities That Care Project.

Program Components:

Regarding individual intervention strategies, firstly, the "social and emotional learning" intervention encompasses a variety of socio-emotional skills, including self-awareness, self-management, social awareness, relationship management, and responsible decision-making (Chung & McBride, 2015; Zins et al., 2007). Secondly, training on recognition and resistance skills to social influences and the use of alternative solutions is inspired by the program called "Here's Looking at You 2000" (Kim et al., 1993) and as conceptualized by Hawkins et al. (2003) for the prevention of mental health problems, crimes, drug use, and the promotion of positive youth functioning. Finally, the "cooperative learning" strategy involves forming small, heterogeneous learning groups consisting of students with different abilities and knowledge (Hawkins et al., 2003).

Family intervention, on the other hand, includes proactive management training provided to parents. This training is based on effective and healthy communication with children, encompassing not only socialization facts but also all ideas, feelings, and values that families can impart to their children (Hawkins & Weiz, 1985). Additionally, it is grounded in basic skills in effective interaction and empathic listening (Patterson et al., 1973), along with expectations and sanctions inspired by the intervention known as "Catch Them Being Good." Furthermore, training on opportunities and rewards aims to provide children with opportunities to engage in prosocial family activities and to offer rewards marked by affection, encouragement, and support for such engagement (Hawkins & Weiz, 1985).

Finally, scalar intervention comprises an interactive teaching strategy, which entails learning and communicative activities through which students engage in a process of learning and reflection on their knowledge and thoughts (Giorgdze & Dgebuadze, 2017). Additionally, proactive management involves establishing an appropriate classroom environment that promotes learning and positive student behavior, thereby minimizing disruptions to school activities, including routines, planning, physical arrangement, and the student-teacher relationship (Hawkins et al., 2003; Cooper & Scott, 2017; Nagro et al., 2018). Lastly, a strategy based on the

opportunity for engagement in extracurricular activities and rewards considers the emotional, cognitive, and behavioral conduct favored by students, thereby enhancing the reinforcements perceived by participating students (Catalano et al., 1996).

Method

Participants:

This research comprises a population of students susceptible to engaging in antisocial behavior. Our sample was drawn from this population. Initially, we employed a probabilistic method to select one hundred students. Subsequently, following the approach outlined by Carricano et al. (2009), we administered a test to this sample to assess predictors associated with antisocial behaviors. This test was conducted using a research questionnaire. Based on the results of this analysis, we constituted an experimental group comprising thirty students and a control group with another thirty students, as illustrated in the table below:

Table 1: Number and gender of students participating in the experimentation

The group	Boys	Girls	Total
Experimental	17	13	30
Control	18	12	30

Design and Analysis Technique:

Given the quasi-experimental nature of the research, the pretest-posttest model was employed. This model, widely utilized in behavioral research, aims primarily to compare groups and/or assess changes in measurements following experimental treatment (Dimitrov & Rumrill, 2003).

To analyze the data and ascertain the significance of the results, statistical tests were utilized. Specifically, non-parametric tests were selected for data analysis, as they are suitable for non-parametric data and allow for the utilization of central tendency measurements, such as the median. Among these tests, the Wilcoxon test was chosen. This test enables the comparison of two matched samples, namely, the responses provided by the same individuals before and after exposure to the intervention. Typically, the Z statistic of the Wilcoxon test is determined "by computing the difference between the scores of the two observations for pairs of observations, then by calculating the rank of all the differences, and finally by summing the ranks of positives and negatives" (Carricano et al., 2009, p.43).

Moreover, another statistical index was employed to gauge the extent of the effect of intervention strategies on the selected predictors, considered as dependent variables. This index is commonly known as the "effect size" index, denoted as r. It belongs to a family of indices used to quantify the magnitude of treatment effects, irrespective of sample size (Becker, L., 2005). Calculation of this index entails various formulas, one of which is proposed by Pallant and Manual (2007). These authors advocate for computing the effect size for a Wilcoxon signed-rank test by dividing the Z value of the test by the square root of N, following the formula:

$$r = \frac{Z}{\sqrt{N}}$$

Data Collection Tool:

a. **Questionnaire:**

The questionnaire utilized in this study is a

version derived, adapted, and validated by Ezzaidi (2021), based on the original "Communities That Care Youth Survey" (CTC-YS) model (Arthur et al., 2002). Notably, this model serves as a screening system integrated into the "Communities That Care" preventive intervention program implemented in the United States. Predicators related to antisocial behaviors, as identified by the theoretical framework of the "Social Development Model" (Hawkins & Weiz, 1985), have been incorporated into the CTC-YS system and subjected to psychometric scrutiny across various contexts.

Considered unique by many scholars (Flynn, 2008; Glaser et al., 2005; Baheiraei et al., 2016), this screening system facilitates the measurement of a diverse array of risk and protective factors pertinent to predicting potential antisocial behaviors among adolescents aged 11 to 18 (Glaser et al., 2005; Baheiraei et al., 2016). These measures encompass individual and peer aspects, as well as family, school, and community domains. The validity of this system has been validated through several psychometric studies. For instance, Morojele et al. (2002) conducted a reliability study of the questionnaire on South African adolescents and affirmed its validity and reliability, findings echoed by Baheirai et al. (2016) in their study on Iranian adolescents, which confirmed that all constructs forming the questionnaire possess requisite psychometric qualities.

b. Semi-Structured Interviews:

Semi-structured interviews were employed as a supplementary data collection tool primarily directed at the parents of adolescents participating in the experiment. Semi-structured interviews, also known as guided interviews, are commonly used data collection techniques aimed at eliciting detailed information on various topics (Abric, 1999). Essentially, semi-structured interviews involve conversations or dialogues structured within a comprehensive logic framework that emphasizes description over causal explanation (Azioun & Derguin, 2018). This tool was utilized to garner parents' perspectives on behavioral changes following the intervention.

Results:

a. Effect of Individual Strategies:

Overall, individual strategies yielded significant results. The training program on social and emotional skills, which targets the reduction of risk factors associated with rebellion and interaction with antisocial peers, while reinforcing protective factors such as moral beliefs, demonstrated a positive impact. However, certain items did not yield significant scores. For instance, item 1 of the rebellion dimension exhibited a score slightly above 5% (0.096). Similarly, the training on recognition and resistance skills to social influences and alternative solutions showed a significant impact on the risk factor pertaining to favorable attitudes towards antisocial behavior, with overall scores remaining below 5% (e.g., item 1 recorded 0.011 for boys and 0.020 for girls). Lastly, cooperative learning strategies exhibited a positive impact on the protective factor associated with attachment to

prosocial peers, with p-values not exceeding 5% overall. In terms of effect size, a moderate effect was generally observed for all implemented training programs, with scores ranging from 0.21 to 0.50 on the adopted Cohen scale.

Table 2: Inferential statistics measuring the effect of individual strategies on individual risk and protective factors

The dependent variable			Effet of l'expérimentation					
			Z Value		Asymptotic Significance (bilatérale		R Value	
			G	F	G	F	G	F
Risk factor	rebellion	Item1	-1,664[b]	-2,309[b]	,096	,021	-0.28	-0.45
		Item2	-2,230[b]	-2,251[b]	,026	,024	0.38	0.44
		Item3	-2,658[b]	-1,903[b]	,008	,057	0.45	0.37
	positive Attitude toward C/A	Item1	-2,539[b]	-2,326[b]	,011	,020	0.43	0.45
		Item2	-2,630[b]	-2,683[b]	,009	,007	0.45	0.52
		Item3	-1,996[b]	-2,588[b]	,046	,010	0.34	0.50
		Item4	-3,006[b]	-3,153[b]	,003	,002	0.51	0.61
		Item5	-2,495[b]	-1,999[b]	,013	,046	0.42	0.39
	Interaction with antisocial peers	Item1	-2,683[b]	-2,280[b]	,007	,023	0.46	0.44
		Item2	-1,993[b]	-2,041[b]	,046	,041	0.34	0.40
		Item3	-2,859[b]	-2,714[b]	,004	,007	0.49	0.53
		Item4	-2,762[b]	-2,428[b]	,006	,015	0.47	0.47
		Item5	-2,913[b]	-2,414[b]	,004	,016	0.49	0.47
Protective factor	Belief In order	Item1	-2,491[b]	-1,897[b]	,013	,050	0.42	0.37
		Item2	-1,983[b]	-1,511[b]	,047	,031	0.34	0.29
	Prosocial attachement	Item1	-2,994[b]	-2,585[b]	,003	,010	0.51	0.50
		Item2	-1,413[b]	-,520[b]	,050	,003	0.24	0.49
		Item3	-1,999[b]	-2,126[b]	,046	,033	0.34	0.41

b- Effect of Family Strategies:

Similarly, family intervention generally yields positive outcomes, as evidenced in the summarized table below. Parental training centered on effective family management contributes to the reduction of risk factors associated with inadequate family management and parental conflicts, with all items displaying significant results (although some non-significant results were observed, such as item 1 for parental

conflicts across genders). Moreover, parental training on proactive management, aimed at reinforcing the protective factor associated with familial attachment, also yielded significant results, as did parental training focusing on fostering engagement opportunities to reinforce the protective factor linked to participation in prosocial family activities. Additionally, it is noteworthy that parental training on the efficacy

of rewards for desirable behaviors positively impacts the protective factor related to incentivizing prosocial engagement in family activities (with all items exhibiting a p-value not exceeding 5%, except for item 1 for girls). The interventions' effects generally demonstrate a moderate value around 0.05, indicating a moderate influence of the strategies on the targeted predictors.

Table 3: Inferential statistics measuring the effect of family strategies on family risk factors and protective factor

Dependent variables			Experimental effect					
			Z value		Asymptotic significance(two-tailed)		R value	
			G	**F**	**G**	**F**	**G**	**F**
Risk factor	Conflicts P	Item1	$-3,100^b$	$-2,719^b$	,052	057	0,53	0,53
		Item2	$-2,846^b$	$-2,511^b$	,004	,012	0,48	0,49
	Poor management P	Item1	$-2,339^b$	$-2,919^b$	,019	,004	0,40	0,57
		Item2	$-2,652^b$	$-2,537^b$	,008	,051	0,45	0,49
		Item3	$-2,738^b$	$-2,414^b$	,056	,007	0,56	0,47
		Item4	$-3,006^b$	$-3,153^b$	,003	,002	0.51	0.61
Protective factor	Family attachment	Item1	$-2,251^b$	$-2,460^b$	,024	,014	0.38	0.48
		Item2	$-2,126^b$	$-2,070^b$	,033	,038	0.36	0.40
		Item3	$-2,805^b$	$-2,226^b$	,005	,026	0.48	0,43
		Item4	$-2,124^b$	$-2,333^b$	,034	,020	0.36	0.45
	opportunity	Item1	$-2,739^b$	$-2,598^b$	,006	,009	0.46	0.51
		Item2	$-1,983^b$	$-1,511^b$	,047	,031	0.34	0.29
	Rewards	Item1	$-2,047^b$	$-1,933^b$	,041	,053	0.35	0.37
		Item2	$-2,910^b$	$-2,373^b$	,004	,018	0.49	0.46
		Item3	$-1,765^b$	$-2,640^b$	,078	,008	0.30	0.51

c- School Strategies:

Ultimately, the preventive measures implemented to deter antisocial behaviors demonstrate a generally positive impact overall. For instance, interactive teaching strategies and proactive classroom management contribute to the

mitigation of risk factors associated with students' weak attachment to school and limited engagement therein, as indicated by an average p-value across all items falling below the requisite 5%. Furthermore, the second strategy, centered on cultivating opportunities and rewards within the

classroom setting, serves to bolster protective factors associated with fostering opportunities for prosocial school engagement and incentivizing such behavior, as depicted in the ensuing table.

These interventions also exhibit a moderate to substantial effect, as evidenced by some items registering an r-value surpassing 0.06 on the Cohen scale.

Table 4: Inferential Statistics Evaluating the Impact of school Strategies on school Risk Factors and Protective Factor

Dependent Variables			Experimental Effect					
			Valeur de Z		Asymptotic Significance (Two-tailed)		R Value	
			G	F	G	F	G	F
Risk factor	Low school attachment	Item1	-3,601[b]	-3,126[b]	,000	,002	0.61	0.61
		Item2	-2,804[b]	-2,230[b]	,005	,026	0.48	0.43
		Item3	-3,256[b]	-2,724[b]	,001	,006	0.55	0.53
		Item4	-3,482[b]	-3,002[b]	,000	,003	0.59	0.58
	School failure	Item1	-2,207[b]	-2,360[b]	,027	,018	0.37	0.46
		Item2	-2,721[b]	-2,919[b]	,007	,004	0.46	0.57
		Item3	-3,207[b]	-2,549[b]	,001	,011	0.55	0.50
Protective factor	School opportunity	Item1	-3,589[b]	-3,275[b]	,000	,001	0.60	0.64
		Item2	-2,754[b]	-2,066[b]	,006	,039	0.46	0.40
		Item3	-3,169[b]	-2,739[b]	,002	,006	0.53	0.53
		Item4	-3,250[b]	-3,002[b]	,001	,003	0.55	0.58
	School rewards	Item1	-3,407[b]	-3,100[b]	,001	,002	0.57	0.60
		Item2	-2,721[b]	-2,645[b]	,007	,008	0.46	0.51
		Item3	-3,017[b]	-3,071[b]	,003	,002	0.51	0.60

Discussion:

The individual strategies implemented, including training in socio-emotional and cognitive skills, as well as resistance training, have demonstrated a positive impact on the targeted predictors. These findings are consistent with prior research on the efficacy of individual interventions in preventing antisocial behaviors, as indicated by studies conducted by Chung and McBride (2015); Elias (1997, cited by Chung and McBride, 2015); Zins et al. (2007); Shure (2001); and Hawkins et al. (2003). These studies suggest that employing social and emotional learning techniques with at-risk individuals fosters reflective abilities and encourages the adoption of socially acceptable alternative solutions, thereby cultivating skills for engaging in social activities without resorting to aggressive behaviors. Such interventions are widely regarded as highly effective in nurturing social competencies such as communication, empathy, cooperation, decision-making,

negotiation, and conflict resolution (Hawkins et al., 2007; Chernyshenko et al., 2018). Consequently, youths may develop positive moral beliefs, thus deterring engagement in drug use or other antisocial behaviors (Arthur et al., 2002).

Moreover, interventions targeting families constitute another critical facet of antisocial behavior prevention. Our study indicates that training in proactive family management can assist parents in implementing more sociable management practices characterized by effective conduct management, appropriate rewards, clear expectations, and avoidance of arbitrary and severe sanctions. This contributes to a reduction in risk factors associated with inadequate family management and familial conflicts, as evidenced by numerous studies (Haggerty et al., 1998; Hawkins and Weiz, 1985; Hawkins et al., 2003). Similarly, our findings underscore the preventive potential of opportunities and rewards provided by families in curbing antisocial behavior. This aligns with previous research, particularly studies by Hawkins and Weiz (1985); Hirschi (1969); Jensen (1972); Haggerty et al. (1998); and Hawkins et al. (2007), which highlight the significance of facilitating opportunities for familial engagement in diverse activities, implementing proactive family management strategies, and leveraging positive reinforcement or feedback to foster desirable behaviors, thereby strengthening familial bonds and preventing antisocial behaviors.

Lastly, school-based interventions emerge as a crucial element in preventing juvenile antisocial behaviors. The adoption of innovative teaching methodologies, particularly proactive management and interactive teaching approaches, can significantly mitigate school-related risk factors such as academic underachievement and disengagement, as evidenced by prevention studies conducted by Kosterman et al. (2000); Arthur et al. (2002); and Hawkins et al. (2003). By fostering opportunities for prosocial engagement within the school environment and rewarding such engagement through positive reinforcement or other incentives, the adoption of antisocial

behaviors can be deterred. In conclusion, our findings corroborate existing literature, particularly regarding strategies employed within the school context, as evidenced by various prevention studies conducted by Kosterman et al. (2000); Arthur et al. (2002); and Hawkins et al. (2003).

Conclusion:

This study aimed to implement and assess a preventive intervention program targeting youths aged 11 to 17 years. This dual objective enabled us to venture into a novel domain in the realm of scientific inquiry in Morocco, namely the prevention of deviations. The implementation of a preventive intervention program within the secondary education setting was undertaken with the primary aim of evaluating its efficacy in reducing the likelihood of adolescents engaging in antisocial behaviors within the educational milieu.

While the obtained results are promising, our program does exhibit certain limitations that may serve as avenues for future research. Among these limitations is the neglect of community-based interventions within our prevention system. It is noteworthy that the initial theoretical framework (the social development model initiated by Hawkins and Weiz (1985)) we employed recommends preventive interventions across four socialization domains: family, school, individual, and community (Hawkins and Weiz, 1985; Catalano et al., 1996). The community domain, according to the theory, constitutes a context for intervention aimed at minimizing the likelihood of violence among young adolescents aged 17 to 18 (Catalano et al., 1996). Consequently, due to resource and time constraints, we did not address predictors such as attitudes favoring drug consumption, perceptions of drug-related risks, peer drug use, sensation seeking, rewards for antisocial engagement, religiosity, and social skills at the individual/peer level, as well as predictors such as family history of antisocial behavior, parental attitudes toward drug consumption, and parental attitudes favoring

antisocial behaviors at the family level. These predictors, in conjunction with those from the community domain, offer additional avenues for promoting effective prevention of antisocial behaviors.

Despite these identified limitations, the implementation of a prevention system within the school setting has proven effective. With its multidimensional genesis grounded in recent research in prevention science, which draws from child and adolescent psychology, coupled with the imperative need to implement prevention programs instead of resorting to punitive measures that fail to address the root causes of antisocial behaviors (Dodge, 2001), this prevention system heralds a new era of proactive intervention in combating various forms of antisocial behavior that may manifest within the context of secondary education in Morocco.

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