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# Evidence-based intervention against bullying and cyberbullying: measurement of the constructs, evaluation of efficacy and mediation processes

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# ABSTRACT

The present dissertation tried to provide an answer to the need of high-quality evaluations of theoretically grounded antibullying interventions (Baldry & Farrington, 2007; Ttofi & Farrington, 2011). Literature of the last ten years shows that aggressive behaviours carried out by peers may be experienced in both face-to-face and online interactions (Tokunaga, 2010; Wingate, Minney, & Guadagno, 2013); for this reason adopting a specific focus both on bullying and cyberbullying appears to be more suitable (Menesini, 2012). The general aim of the present dissertation was to evaluate *Noncadiamointrappola!* program 3rd Edition by adopting an evidence-based approach in analyzing aspects related to the intervention's efficacy. Three empirical studies are presented. They cover three main issues: 1) measurement of the cyberbullying constructs; 2) efficacy of the *Noncadiamointrappola!* program in reducing bullying, cyberbullying,  and internalizing symptoms; 3) mediational mechanisms involved in the explanation of the efficacy of the program in reducing cybervictimization.

In the first study we analyzed the psychometric properties of a revised instrument (FCBVSs; Menesini, Nocentini, & Calussi, 2011) devoted to measure cybervictimization and cyberbullying constructs. The analyses were conducted on a sample of 1142 adolescents (54.5% males) enrolled in 9th, 10th 11th grades of high schools in Tuscany. Results support a gender-invariant model based on 14 items and four factors both for cybervictimization and cyberbullying. The subscales cover four types of behaviours and describe different attacks made by peers in the cyber context (written-verbal, visual, impersonation and exclusion). The second order CFA confirmed that a "global", second-order measure of cyberbullying and cybervictimization fits well with data. Overall the scales showed both good validity (construct, concurrent and convergent) and reliability (internal consistency and test-retest).

In the second study we evaluated the effects of the *Noncadiamointrappola!* program in two quasi-experimental trials that involved different samples of adolescents attending the first year of Italian high schools. We found that the program in the experimental group significantly predicted a decrease in all targeted variables (victimization, bullying, cybervictimization, and

cyberbullying) in both quasi experimental trials. Looking at the first quasi experimental trial results (Control group, N=171; Experimental group, N=451), we found significant long-term effects of the program (six months); the outcomes did not decay over time. At the same time, we found that the program was efficacious in reducing internalizing symptoms in the experimental group through the decrease in cybervictimization above and beyond the mediational effect of the decrease in victimization. In the second independent trial (Control group, N=227; Experimental group, N=234) we tested for potential moderating effects of gender; we found that it did not have interactive effects with the efficacy of the program.

In the third study, using data about the first quasi experimental trial, we analyzed the mediational mechanisms that explain the efficacy of the program in reducing cybervictimization. We found that the program predicted the increase over time in seeking support coping strategy, both on informational and instrumental aspects (distal advice) and on the more emotional way of getting help from people (close support). *Noncadiamointrappola!* program had significant indirect effects, through distal advice and close support, in reducing cybervictimization.

Results are discussed highlighting their contributions to the literature both on evidence-based interventions and on bullying and cyberbullying phenomena. Finally, the overall strengths, limitations and implication for future studies are pointed out.

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# CHAPTER I

# INTRODUCTION

Based on a naive reflection of our daily lives, we can have a clear feeling that, in recent years, the boundaries of our world have changed and, simultaneously, we have become progressively aware of their fluidity and constant re-definition. At the same time, we know that in our world the "real" and "virtual" aspects are becoming increasingly interconnected; therefore, a separate vision of these two dimensions would be unrealistic.

Starting with the layperson's view, an incredible amount of research has been devoted to understanding the impact, effects, and consequences of Internet and Communication Technologies (ICTs) on our lives. Thinking about the telegraph, telephone, radio, motion pictures and television, we may argue that the Internet is only the latest in a series of technological advances that have changed the world in a fundamental way (Bargh & McKenna, 2004) and  always, in each of these historical transformations, people have been required to adapt their habits. The ability to access to the World Wide Web is burgeoning around the world. Many adolescents own some form of mobile phone that is capable of accessing the Internet, and most have Internet access directly through either their phones or connections at home (Lobe, Livingstone, Ólafsson, & Vodeb, 2011). People routinely go online to quickly find needed information; children are now growing up with ICTs as a common background and even a new term was coined to describe these aspects: *"digital natives"*. Internet and communication technologies are rapidly becoming a natural, contextual backdrop of our everyday lives, influencing close personal relationships, work activities and relations, group memberships, social support, community involvement and so on. Hardware and software are both constantly developing, and people are able to communicate and exchange information in an easy, rapid, reliable, and often entertaining manner that is historically unprecedented.

A primary reason that people use the Internet is to communicate with others and, in turn, the principal reason for chatting, sending e-mails, posting photos etc., thus serving to maintain and to create interpersonal relationships (Amichai-Hamburger, Kingsbury, & Schneider, 2013). Both the "real" and digital sides of our world are now highly interconnected; we try to keep in touch with those people from our "real", face-to-face life even when we cannot engage them physically, and yet, it is increasingly common to bring close internet relationships into our "real world" lives (Lobe et al., 2011; Sprecher, 2012; Tang, 2010).

Few would dispute that the Internet commonly has significant impacts on social life, but potential benefits from the connection between our virtual and real worlds needs to be contextualized together in order to evaluate the possible risks for mental health and children's development. In doing so, it is crucial that both sides of the same coin be taken into account when discussing and researching ICTs.

The current use of new communication technologies, the young age at which people have their first experience with ICTs, and the consistent amount of time they spent with such technologies (Lobe et al., 2011; Livingstone & Haddon, 2009) are clear indicators of the notion that young people are acutely aware of the huge opportunities that new technologies can offer them. However, although they frequently use ICTs, they may not necessarily be aware of all risks involved, nor able to master or decide upon the best strategies to realize their online experiences in a safe fashion. They may be exposed to inappropriate material (such as sexual explicit content; violence etc.), to sexual predators seeking to build relationships with children (i.e. paedophiles or cyberstalkers), to thefts of personal information, and to online harassment by peers: the so called cyberbullying.

# 1. BULLYING AND CYBERBULLYING

## 1.1. Definition

Aggressive behaviours acted by peers may be experienced in both face-to-face and online interactions. While research on bullying started more than twenty years ago (Olweus, 1993), the attention of researchers towards cyberbullying is more recent. However, at the same time, the literature about this phenomenon is growing prolifically.

Bullying is often defined as an aggressive, intentional act or behaviour that is carried out by a group or an individual repeatedly and over time against a victim who cannot easily defend

him or herself (Olweus, 1993). Three criteria are relevant in order to define an aggressive behaviour as bullying: 1) repetition, 2) intentionality, and 3) an imbalance of power. Given these characteristics, bullying is often defined as a systematic abuse of power by peers (Smith & Sharp, 1994; Rigby, 2002).

Extending the definition from traditional bullying to the virtual environment, cyberbullying has been defined as "an aggressive act or behaviour that is carried out using electronic means by a group or an individual repeatedly and over time against a victim who cannot easily defend him or herself" (Smith et al., 2008 p. 376). Considering the context of cyberbullying, and specifically the different features of ICTs, multiple scholars have begun to analyze the impact of new criteria that can be relevant to the definition of cyberbullying, such as anonymity and publicity (Menesini et al., 2013). Cyberbullying may occur when the victim does not know the identity of the bully and is often characterized by the involvement of a large audience or by the inability to obfuscate/remove information or content after having shared it online (Dooley, Pyżalski, & Cross, 2009; Kowalski & Limber, 2007; Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010; Tokunaga, 2010; Wingate et al., 2013). At the same time, several researchers have pondered the criteria of traditional bullying and the specific meaning that they assume in the cyber context, regarding the definition of cyberbullying. Two studies were designed specifically to analyze all of these criteria adopting a cross-cultural approach, experimentally manipulating different scenarios and asking adolescents to define them as cyberbullying or not (Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010). Overall, seems that is primarily important to know if the action is done intentionally to harm the victim (criterion of intentionality) and the effect it has ("the victim was upset" is part of the power imbalance criterion): both are criteria of the traditional bullying definition. Differently, repetition criterion seems to be not likewise necessary in cyberbullying definition. In relation to the new criteria proposed by the literature results suggest that they are not necessary to label an action as cyberbullying, but they can connote the context. Sticca and Perren (2013), focusing on the role of the different criteria in relation to the seriousness of the incidents, found the role of the context and medium (face to face vs cyber) as secondary in comparison with the role of publicity and anonymity: cyberbullying is not a priori perceived as worse than traditional bullying, but certain characteristics make it worse as in the case of an anonymous or public attack.

Unfortunately we are far from close in the discussion on which criteria are essential for defining cyberbullying. The debate is still open and, in agreement with Wingate and colleagues (2013) we can say that cyberbullying literature, suffers from the absence of a

''gold standard definition'' which is reflected on the lack of a common operationalization of the construct and on the open questions regarding the overlap of two constructs[1]: theoretical and practical (presence).

## 1.2.    Prevalence rates, overlap and independence of the constructs

The debate on the prevalence of cyberbullying is important and has been documented by multiple researchers. It was well-summarized by the provocative title of the invited expert discussion paper by Olweus (2012b): "Cyberbullying: An overrated phenomenon?". The author claimed that cyberbullying manifests markedly low prevalence rates and is completely absorbed by the traditional category of bullying. This argument is premised upon the notion that cyberbullying has made neither "new" victims nor "new" bullies – that is, cyberbullying involves only those who would already be involved in some form of traditional bullying. However, the phenomenon does not share the same context of traditional bullying and, regardless of its prevalence, it does still occur. So, then, what of those cases that are present?

It is quite difficult to properly address this question as the phenomenon has been investigated using discrepant methods, operationalizations, and terminology (e.g. electronic bullying, online aggression, cyber attacks and so on) (Berne et al., 2013; Menesini & Nocentini, 2009; Nocentini et al., 2010; Tokunaga, 2010; Wingate et al., 2013). At the same time, while searching for a realistic estimate of the presence of cyberbullying, we should be aware that methodologies thus far employed often operate across different time frames (e.g., the past couple of months; in the last year; during your life, etc. (Hinduja & Patchin, 2012; Menesini, Nocentini, & Calussi, 2011; Menesini & Nocentini, 2009; Tokunaga, 2010). A second difficulty in cyberbullying research is that ICTs have evolved and continue to do so at a non-negligible rate. For example, with the proliferation of smartphones, the initial distinction between mobile phone and internet cyberbullying is no longer a conceptually valid dichotomy (Slonje, Smith, & Frisén, 2013). A review of cyberbullying prevalence rates found a significant presence of cyberbullying in all countries analysed (Garaigordobil, 2011). It was found that approximately 40-55% of students are involved in cyberbullying in some role (victims, perpetrators, observers), between 20% and 50% reported experiences of victimization, but only between 2% and 7% has suffered severely, with variations according to the country, ages of the samples, and the time frame in which information is requested.

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[1] See the second chapter of the present dissertation for a more focused overview about the cyberbullying definition and measurement  and the related  implications

Tokunaga (2010), during a review of available data, noted that the evidence suggests that cyberbullying victimization is not limited to an insignificant proportion of children and teens. He reported that an average of 20–40% of youngsters has been victimized during their life; however, these rates appeared to attenuate as time progressed. In contrast, he reported that data from a national telephone survey (YISS), suggested that the incidence rate of cyber-bullying victimization was around 6.5% (Ybarra & Mitchell, 2004; Ybarra, 2004) and that this possible deflation could have been the result of using specific dichotomized questions about Internet harassment. Reviewing 35 papers published in peer-reviewed journals, Patchin and Hinduja (2012) reported that, on average, 24% of students had been cyberbullied while 17% of students admitted to engaging in cyberbullying behaviours during their lifetime.

In the realm of face-to-face bullying research, higher estimates regarding bullying and victimization are often found. In the World Health Organization's (WHO) Health Behavior in School-Aged Children survey (HBSC, see Craig & Harel, 2004), the average prevalence of victims and bullies across the 35 queried countries was 34% and 35%, respectively, comprising the less severe forms of bullying (of them 11% were involved in the most severe form both for bullying and victimization) considering the past couple of months before the survey administration. In a more recent WHO survey (Currie et al., 2012), the prevalence rates for the most severe forms of bullying in 38 countries around the world tended to be highly similar: 12% for victimization and 11% for bullying in 13 years old respondents, and 9% for victimization and 12% for bullying for 15 years old respondents. Bullying victimization and perpetration are prevalent behaviours among young people, but prevalence rates appear to differ considerably across countries. Rigby and Smith (2011) examined longitudinal trends in bullying prevalence between 1990 and 2009. They analysed studies in different countries that collected repeated measures using the same instruments. In general, they found a decrease in bullying prevalence; however, this trend was not universal. Additionally, they preliminarily suggested that there are some indications of an increase in cyberbullying across time. Unfortunately, only two studies matching their criteria were available (in United States and England). The decreasing trend in bullying was attributed by the authors to the estimates of the effectiveness of interventions or to a different and more restricted definition of bullying widely adopted by researchers.

In attempts to disentangle the possible conceptual overlap, some studies have been carried out in order to analyse the co-occurrence of both bullying and cyberbullying (Gradinger, Strohmeier, & Spiel, 2009; Kowalski & Limber, 2013). Gradinger and colleagues (2009) analyzed the co-occurrence by labelling groups of bullies (e.g., traditional, cyber, or both),

victims (e.g., traditional, cyber, or both), and bully-victims and testing gender differences: the authors highlight the presence of an overlap between traditional and cyber forms of victimization while for the traditional and cyber forms of bullying they found the same overlap only for males. Similarly, categorizing the participants as belonging to one of four groups (victims, bullies, bully/victims, and those not involved) for both bullying and cyberbullying, Kowalski and Limber (2013) found a substantial overlap in the involvement in both forms of bullying, but bully/victim groups, particularly in the cyber context, had the most negative scores on most measures of psychological health, physical, health, and academic performance.

Summarizing, it is clear that both face to face and cyber bullying are present. Higher prevalence rates were found for bullying. Some findings about the presence overlap support the position in which cyberbullying is a logical extension of traditional bullying, thus allowing for the extension of our knowledge of traditional bullying to cyberbullying. Others suggest that, although sharing certain features, cyberbullying and traditional bullying are somewhat unique types of bullying, especially if we look at *what* adolescents define as cyberbullying and at the seriousness of the incidents (Kowalski & Limber, 2013; Menesini, Nocentini, Palladino, et al., 2012; Sticca & Perren, 2013). It is possible to agree with Olweus (2012b) that data do not support the mass-media ideas of an increase over time in the presence of cyberbullying and its extreme pervasiveness above and beyond that of traditional bullying (Hinduja & Patchin, 2012; Olweus, 2012b). However, it is difficult to agree with a complete denial of this phenomenon: probably the best choice is to give to cyberbullying a "*right value*" (Menesini, 2012). In this view, the prefix "cyber" may be interpreted as signalling the context of bullying. Placing cyberbullying research in a "proper context", along with traditional bullying, as Olweus (2012b) has stated, could be the best way to further increase knowledge about bullying in face-to-face and cyber contexts alike, thus capturing their included subtleties.


## 1.3.    Consequences

Bullying literature is unanimous in affirming that this phenomenon brings negative consequences for well-being. At the same time, considering the similarities underlined in the previous paragraph, it is important to analyse if all of these problematic outcomes are present when an attack had place in the cyber context and the impact that cyberbullying has over and beyond traditional forms.

In the past three decades, a significant effort has been put forth by researchers analysing the effects of *face-to-face bullying* on physical, psychological, relational, and general well-being. As Arseneault, Bowes, and Shakoor (2010) underscored in their review, bullying is associated, in a short term period, with severe symptoms of mental health problems and, furthermore, has long-lasting effects that can persist until late adolescence. That is, bullying appears to contribute multifariously to children's mental health problems. Recent meta-analyses, largely focused on longitudinal studies, aid in summarizing such findings (Gini & Pozzoli, 2009; Kim & Leventhal, 2008; Reijntjes, Kamphuis, Prinzie, & Telch, 2010; Ttofi, Farrington, Lösel, & Loeber, 2011a, 2011b; van Dam et al., 2012). Specifically, the consequences of bullying have been analyzed as an effect of the involvement in this phenomenon, considering not only victimization as a risk factor but also analyzing the long-term effects for the bullies and the bully-victims. Based upon results of a meta-analysis on 28 longitudinal studies, Ttofi and colleagues (2011a) concluded that bullying perpetration is a strong and specific risk factor for later criminal offense: the probability of offending (up to 11 years post-assessment) was significantly higher for school bullies than for non-involved students, even after controlling for other major childhood risk factors. Another meta-analysis suggested that population-based non-clinical studies support the role of bullying in the development of psychotic symptoms later in life (van Dam et al., 2012). Looking at 18 longitudinal studies, Reijntjes and colleagues (2010) analyzed the role of internalizing problems and their relationship to bullying. The authors concluded that such problems appear to be both antecedents and consequences of peer victimization, constituting a "vicious cycle" that contributes to the elevated stability of peer victimization. Analyzing cross-sectional studies, Kim and Leventhal (2008) found that any type of major involvement in bullying incidents (as a bully, as a victim or as a bully-victim) increased the risk of suicidal ideations and/or behaviours. Bully-victims, victims, and bullies had a significantly higher risk of psychosomatic problems than non-bullied agemates (Gini & Pozzoli, 2009, 2013), and victimization was a major childhood risk factor that uniquely contributes to later depression, even controlling for many other major childhood risks (Ttofi, Farrington, Lösel, & Loeber, 2011b). Only a few studies were able to analyze long-term effects of bullying and victimization using longitudinal methods that reassessed participants during a really long period of life. Using data from a longitudinal study of a birth cohort of 1,265 individuals followed to age 30, Gibb, Horwood, and Fergusson (2011) emphasized that reports of bullying perpetration and victimization (as reported by parents and teachers) in childhood are associated with higher rates of later mental health/adjustment problems (such as major

depression, anxiety disorders, suicidal ideation, suicide attempts, alcohol dependence, illicit drug dependence, conduct/antisocial personality disorder, violent offending, property offending, and arrest/court conviction). Results from the Pittsburgh Youth Study (Farrington, Loeber, Stallings, & Ttofi, 2011), which included a first assessment at 6-7 years and a follow-up at age 19, lead the authors to the conclusion that bullying perpetration is followed by an increased risk of delinquency and that bullying victimization is followed by an increased risk of depression.

In recent years, the important connection between bullying and well-being was further analyzed considering the possible unique, parallel, additional or synergistic effects played by the context: what happens when *bullying* takes also place *in cyber-context*? The interactions that occur in the virtual world can affect the everyday reality that students experience elsewhere. As for bullying, the growing literature about cyberbullying often highlights the consequences of this phenomenon with regards to the individual's well-being. Studies (Bauman, Toomey, & Walker, 2013; Cooper, Clements, & Holt, 2012; Garaigordobil, 2011; Hinduja & Patchin, 2010) have shown that cyber-victims experience anxiety, depression, problematic internet use, suicidal ideation, stress, fear, low self-esteem, feelings of anger and frustration, helplessness, nervousness, irritability, somatisation, sleep disturbances, suicidal thoughts, and concentration difficulties that affect their academic performance. Conversely, cyberbullies appear to exhibit a lack of empathy, aggressive and criminal behaviours, higher use of alcohol and drugs, dependence on technology, and truancy. On the other side, cyberbullies-victims show higher depressive symptoms and more problematic Internet and substance use (Gámez-Guadix, Orue, Smith, & Calvete, 2013).

Research appears to show that the negative consequences of cyberbullying often parallel those of traditional bullying, and a prime research question arises: are there unique and particularly troubling aspects of the cyber context that could affect the quality and the magnitude of the connection between bullying and the negative consequences? We have to keep in mind that unlike traditional bullying, cyber context has specific features that could play a role. Cyberbullying can occur at any time, which may heighten children's perceptions of vulnerability. At the same time something "hurtful" -e.g. text messages, video, picture etc.- can also be distributed quickly to a wide audience and sometime it is difficult to definitely remove it. Although recent research has demonstrated significant connections between involvement in cyberbullying and various psychological health symptoms and difficulties, there is still an open debate as to whether these connections are independent from the involvement in more traditional forms of bullying. The highest risks of poor adjustment were

observed in students who were identified as combined bully-victims (traditional and cyber) (Gradinger et al., 2009). Bonanno and Hymel (2013) found that the involvement in cyberbullying, as either a victim or a bully, uniquely contributed to the prediction of both depressive symptomatology and suicidal ideation, above and beyond the contribution of involvement in traditional forms of bullying (assessed as physical, verbal, and relational). Similarly, in a longitudinal study (Machmutow, Perren, Sticca, & Alsaker, 2012) was found that cybervictimization is an additional risk factor for depressive symptoms over and beyond traditional victimisation in adolescents. Unique and multivariate effects were detected  in a sample of Italian adolescents (Menesini, Calussi, & Nocentini, 2012): both types of bullying and victimization (traditional and cyber) contributed significantly to explain externalizing and internalizing symptoms. A synergistic effect was found only for delinquent behaviours in males: the interaction between the two types of bullying seemed to have a propulsive effect on the symptoms. In particular, a stronger association between traditional bullying and delinquent behaviours was found only when the reported cyberbullying was high. Thus, it was not only the sum of the two types of bullying that amplified the effect on delinquent behaviours, but it was also the interaction between high levels of both cyber and traditional bullying that influenced the level of maladjustment.

To better understand these findings, we can look also into perceptions of bullying incident's severity. This was researched by use of a manipulation of different criteria of hypothetical scenarios presented to students by Sticca and Perren (2013): in their experimental study, they modified the medium (traditional vs. cyber), the criterion of publicity (public vs. private), and bully's anonymity (anonymous vs. not anonymous). The results showed that public scenarios were perceived as worse than private ones and the perception was similar regarding anonymous scenarios versus known person attacks: the role of medium was perceived as secondary to the role of these criteria, suggesting that cyberbullying or bullying are not a priori perceived worse one than the other, but the severity appears to vary according to contextual aspects of the incidents.

Given these results, the need for intervention to limit the harm caused by bullying and/or cyberbullying is clear and urgent. In all the studies cited above, the authors concluded their research by espousing the importance of carrying out effective anti-bullying programs that would have a high benefit/cost ratio in terms of preventing early crime, suicide, internalizing symptoms, and so on. The authors proposed that such interventions be viewed as a form of early intervention for public health.

## 2. EVIDENCE-BASED INTERVENTION

What about the efficacy and effectiveness of the interventions carried out in recent years? While for cyberbullying only few studies have been published about programs targeting cyberbullying (Gradinger, 2013; Menesini, Nocentini, & Palladino, 2012; Ortega-Ruiz, del Rey-Alamillo, & Casas, 2012; Palladino, Nocentini, & Menesini, 2012; Williford et al., 2013; Wölfer et al., 2013), the amount of research on antibullying programs is significant. In the latest meta-analysis on the efficacy of intervention to tackle bullying, Ttofi and Farrington (2011) found that the programs implemented and evaluated are often able to counteract the phenomenon: bullying has decreased by 20–23% and victimization by 17–20%[2]. At the same time, the authors emphasized the necessity of acquiring a deeper knowledge regarding the most effective components of the programs, expressed in the need for future research with a more rigorous design and higher methodological standards along with theoretically grounded intervention models. Despite some limits of this meta-analysis (Smith, Salmivalli, & Cowie, 2012), it is clear that the scholars are encouraged to evaluate the programs *rigorously*. Specifically, it is important to follow high level standards in order to have programs that can be defined *evidence-based* (Eisner & Malti, 2012; Flay et al., 2005).

A common knowledge on which programs can be classified as evidence-based can also help to uptake efficacious programs in public health policies. The discussion on the translational processes of research findings is quite complex. On one side, researchers, policy makers, and the general public showed disappointment for the slow and partially incomplete uptake of bullying research findings in applied settings (Slavin, 2002, 2008; Spiel & Strohmeier, 2012). On the other side, there has been growing international pressure for translational research, for a richer information of public policy and health management by the results of relevant and reliable research (Nutley, Walter, & Davies, 2007; Eisner & Malti, 2012) together with a more clear focus on rigorous experiments evaluating replicable programs and practices (Slavin, 2002). The way for a stricter evidence-approach to prevention has been tracked in recent years and the interest amongst governments in understanding how bullying prevention can be made more effective is increasing, yet many challenges persist. A recent conference on "Evidence-Based Prevention of Bullying and Youth Violence: European Innovations and Experiences"[3] proposed to bring together researchers, policy-makers, and practitioners to discuss innovative research in order to identify areas where progress is essential to provide

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[2]  See the third chapter of the present dissertation for a more focused overview about interventions to tackle bullying and cyberbullying.

[3] It was organized by the Institute of Criminology at the University of Cambridge on 5 and 6 July 2011 and it was supported by the European Science Foundation and the Jacobs Foundation.

policy-makers with better knowledge (Eisner & Malti, 2012). From this conference, many important points arose as well as future directions: both are well described in the introduction of the focus section on "The Future of Research on Evidence-based Developmental Violence Prevention in Europe" in the International Journal of Conflict and Violence (Eisner & Malti, 2012). Specifically, in order to make bullying prevention more effective, there is a clear need to have evidence-based prevention programs based on the correct identification of the causal risk factors and mechanisms that lead to violence and aggressive behaviour, as well as knowledge regarding the protective factors. Other important issues are related to some prevention principles such as embedding violence prevention into a general public health strategy that aims at reducing a range of negative outcomes that are sharing many risk factors and should hence be considered as elements of a larger prevention strategy ("a public health perspective"). It is important to adapt intervention intensity to the risk exposure (e.g. combining universal, indicated, and selective action) and to adopt an ecological perspective of the multi-layered prevention. Obviously, an evidence-based approach to policy change has to inform the governments' decisions, integrating policy-making and research by using high-quality basic research to guide innovation in prevention programs and strategies, by rigorously testing prevention strategies in methodologically sound outcome evaluations, and by working with governments and policy-makers to achieve real-world effects. This requires close cooperation between local and national governments and researchers. Another important indication concerns the need of a more and better evaluation research to create the knowledge base required for achieving reduction in youth violence. Most policy changes in education, social welfare, family affairs, and policing and youth justice are implemented without strict consideration of their effectiveness, and very few studies have attempted to assess whether new policies achieve their goals (Nutley, Walter, & Davies, 2007; Eisner & Malti, 2012). Finally, the researchers emphasized the need to improve knowledge regarding the mechanisms and active components of preventive interventions. Understanding the principles of *why* some interventions work is essential for further progress in this field. Across Europe, there is an increasing demand for good evidence that can inform policies aimed at reducing violence against and among children and adolescents. However, there is still a paucity of high-quality research on effective prevention of bullying and violence (Eisner & Malti, 2012). During recent years, various efforts have been made to define standards of evidence that could be clearly structured and easily comprehensible for researchers and non-researchers alike. The Society for Prevention Research appointed a committee to establish standards for identifying high quality prevention programs and policies. Those standards can assist practitioners, policy

makers, and administrators in determining which interventions show good evidence (Flay et al., 2005) and on the whole, if a program is up to standards, it could be also labelled "evidence-based". These standards were comprised of three main areas: *efficacy, effectiveness* and *dissemination*:

"An efficacious intervention has been tested in at least two rigorous trials that:

- involved defined samples from defined populations;
- used psychometrically sound measures and data collection procedures;
- analyzed the data with rigorous statistical approaches;
- showed consistent positive effects (without serious iatrogenic effects);
- reported at least one significant long-term follow-up effect.

An effective intervention:

- provides manuals, appropriate training, and technical support available to allow third parties to adopt and implement the intervention;
- has been evaluated under real-world conditions in studies that included sound measurement of the level of implementation and engagement of the target audience (in both the intervention and control conditions);
- has indicated the practical importance of intervention outcome effects;
- has clearly demonstrated to whom intervention findings can be generalized.

An intervention recognized as ready for broad dissemination also provides:

- the evidence of the ability to ''go to scale'';
- clear cost information;
- appropriate monitoring and evaluation tools so that adopting agencies can monitor or evaluate how well the intervention works in their settings." (Spiel & Strohmeier, 2012 p.152)

A sustainable cooperation between researchers, policy makers, and practitioners on the national level needs to be established in order to construct a framework for the implementation of evidence-based interventions (Spiel, Salmivalli, & Smith, 2011; Spiel, Wagner, & Strohmeier, 2012; Spiel & Strohmeier, 2011, 2012). Across countries, we can find huge differences on how the evidence-based approach is integrated in the common culture. In the United States, United Kingdom (Nutley et al., 2007), and many other Northern European countries, evidence-based thinking about interventions is maturing[4]. However, the same thing

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[4] See for example the effort of the Ministry of Education in Finland in supporting the dissemination of the evidence-based program KiVa (Kärnä, Voeten, Little, Poskiparta, Alanen, et al., 2011). In Sweden, the Swedish

does not yet appear to be true for most of the Central and Southern European countries (Eisner & Malti, 2012; Spiel & Strohmeier, 2012). For instance, in Italy, only small and fragmented interventions have been implemented against bullying to date (Gini, 2004). While many of these have been efficacious, a comprehensive and long term approach to the problem by policy makers has yet to be implemented. Especially in the field of education, the adoption of programs and practices elsewhere in the world has been driven more by ideology than by evidence; this stands in contrast to other sectors of society such as medicine and agriculture (Slavin, 2008; Spiel & Strohmeier, 2012). Consequently, many findings from developmental and educational psychology and related disciplines, which have the potential to support policy makers, are still being overlooked.

## 3. DISSERTATION OVERVIEW

Starting from all of these considerations, the aim of the present dissertation was to describe and evaluate a peer-led intervention program called *Noncadiamointrappola!* (Let's not fall into the trap!) –3rd Edition, carried out with Italian adolescents, in a manner that attempts to match the standard of evidence as defined by the Society for Prevention Research (Flay et al., 2005). The main aim was to **evaluate *Noncadiamointrappola!* program 3rd Edition program adopting an "evidence-based approach" in analyzing the aspects related to the efficacy of the intervention.**

The present dissertation proceeds as follows:
- **Study 1 (2nd Chapter)**: We analyzed the validity and reliability of a revised instrument (Florence Cyberbullying and Cybervictimization Scales- FCBVSs) devoted to measuring cyberbullying and cybervictimization constructs. Creating a psychometrically validated measure of the constructs can be considered a starting point in order to evaluate the efficacy of intervention.
- **Study 2 (3rd Chapter)**: We analyzed the effects of the *Noncadiamointrappola!* program in two quasi-experimental trials that involved different samples. The aim was to understand if, and the extent to which, the *Noncadiamointrappola!* program 3rd Edition is able to reduce the rates of victimization, bullying, cybervictimization and

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National Council for Crime Prevention asked to the researchers a meta-analyses on bullying interventions in order to find and implement the most efficacious (Ttofi & Farrington, 2011).

cyberbullying phenomena and internalizing symptoms in victims and cybervictims. In other words, we analysed the efficacy of the program.

-   **Study 3 (4<sup>th</sup> Chapter)**: We analyzed mediation processes that may explain the efficacy of the program in reducing cybervictimization. The focus was on social support seeking as a process for dealing in an adaptive way. We analysed this coping strategies both on informational and instrumental aspects (distal advice) and on the more emotional way of getting help from people (close support).

# CHAPTER II

# PSYCHOMETRIC PROPERTIES OF FLORENCE CYBERBULLYING-CYBERVICTIMIZATION SCALES (FCBVSs).

## 1. INTRODUCTION

Recently, the construct of cyberbullying has become an important topic in developmental, psychological, and communicational research; in parallel, several instruments have been developed aimed to assess it. Despite this spread interest, there is still a lack of knowledge regarding the psychometric properties of these measures (Berne et al., 2013). In particular, in their recent review, Berne et al. (2013) pointed out the need to investigate the structure, validity, and reliability of most of the cyberbullying instruments they have analyzed. At the same time, the authors highlighted an important critical point related to the conceptual and definitional bases of the construct: a theoretically well-founded, common perspective is needed to define an instrument able to clearly assess the phenomenon.

Literature has shown two different approaches to cyberbullying assessment, and both are strongly related to the assessment of traditional bullying. The first approach measures the cyberbullying as one form of bullying behaviour. The second approach measures cyberbullying through multiple-item scales specifically aimed to deepen the construct of cyberbullying analyzing different behaviours. The first approach considers bullying as a first order construct that is conceptually defined by different types of behaviours: physical, verbal, relational, cyberbullying. This approach is based upon the consideration that cyberbullying is strictly related to the traditional bullying: for this reason, it is assumed that the definitional criteria of the two constructs are the same. For example in the OBVQ (Olweus, 1996), after a

definition of bullying, the students respond to a global question about having been bullied in the past couple of months. This general question is followed by eight questions about various forms or ways of being bullied, covering the three main categories of verbal, physical, indirect or relational bullying and finally cyberbullying with two sub-questions about mobile phone or internet (Olweus, 2012b). The second approach considers cyberbullying to be a construct separate from, albeit correlated to, traditional bullying. Under this approach, cyberbullying is defined by different types of behaviours: relational cyberbullying, technically sophisticated ways of cyberbullying, mobile phone bullying, internet bullying etc. (Berne et al., 2013). Both approaches present benefits and limitations (see Menesini & Nocentini, 2009). One of the strengths of the first approach is that this measurement allows researchers to be sure that we are referring to an explained definition of cyberbullying, including the three criteria of traditional bullying. Contrarily, these criteria need to be included formally when using multiple-item scales. On the other hand, the first approach does not consider cyberbullying as a multidimensional construct, and this can limit the understanding of the phenomenon in addition to the validity and reliability of its measurement (Menesini & Nocentini, 2009).

While reviewing the cyberbullying literature, the first important point we have to keep in mind is that it is a relatively young field of research: there is a lack of consensus concerning many theoretical questions, such as the relation between cyberbullying and traditional bullying; the definitional criteria are still not univocal, and even the terminologies used by researchers can be different (Menesini et al., 2013; Tokunaga, 2010; Wingate et al., 2013). All these critical issues are important because they may have affected the different operationalizations of the phenomenon in the questionnaires developed in the last ten years by researchers hailing from different theoretical perspectives.

## 1.1. Theoretical problems regarding an instrument assessing cyberbullying

As Wingate and colleagues confirm (2013, p.88), "The cyberbullying literature has suffered from the absence of a 'gold standard' definition". Researchers have varied significantly in the criteria of traditional bullying (intentionality, repetition over time, and power imbalance between perpetrator and victim) they included in their operational definitions of cyberbullying and the specific meaning the criteria assumed when performing research within the cyber context (Dooley et al., 2009; Smith et al., 2008; Willard, 2007). At the same time, there is an implementation of new criteria specific to the ICT environment which are considered when

defining cyberbullying, such as anonymity, that occurs when the victim does not know the identity of the bully, and publicity (as an opposite of private exchanges between two parties), which characterizes the acts where a large audience is involved (Menesini et al., 2012).

In two recent cross-cultural studies, the importance of these criteria in adolescent's perception of the definition of cyberbullying (traditional bullying criteria and cyber context specific criteria), were analyzed both in a qualitative (Nocentini et al., 2010) and in a quantitative study (Menesini, Nocentini, Palladino, et al., 2012). In the qualitative study, the "intention to harm", the primary characteristic of all aggressive acts (e.g. Berkowitz, 1993), appears to be an important criterion in order to define the behaviour as cyberbullying. It is strictly related to the effects on the victim: otherwise the behaviour is perceived as a joke (Nocentini et al., 2010). Similarly, the imbalance of power and the effect on the victim was the second most important criterion in the quantitative study (Menesini, Nocentini, Palladino, et al., 2012). Although it is not really easy and identify the way(s) by which someone is considered powerless compared to another in cyberspace, the relevance of the "imbalance of power", is strongly confirmed across all the countries involved in the same qualitative study and across all the types of cyberbullying behaviour (Menesini, Nocentini, Palladino, et al., 2012). The authors conclude that power imbalance remains an essential criterion in order to define cyberbullying. The issue related to "repetition" in cyberbullying seems to be still open: despite not appearing to be particularly relevant in the qualitative study (Menesini, Nocentini, Palladino, et al., 2012), this criterion can determine the difference between cyberbullying and joking, or between cyberbullying and aggression (Dooley et al., 2009; Menesini & Nocentini, 2009; Nocentini et al., 2010). It could be relevant especially if one considers that in the virtual context, a single aggressive act can lead to an immense number of repetitions of the victimization, even without the continued contribution of the perpetrator. As for the quality of "anonymity", both the qualitative and quantitative results suggested that this criterion does not constitute a requisite for labelling an action as cyberbullying, but it is still relevant because it can connote the severity, the nature of the attack, and the victims' reaction (Sticca & Perren, 2013). Similarly, the criterion of "publicity" was not pointed out as necessary to define cyberbullying in both studies (Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010): the public versus private criterion did not show any necessity in the definition of cyberbullying. It seems that an act may be defined as cyberbullying regardless of whether it is spread to a large audience. However, this criterion can contribute to the cyberbullying definition, especially if combined with other criteria and in relation to the severity of the situation (Sticca & Perren, 2013).

But, what can we say about the operationalization of the definition given by researchers while developing instruments to assess cyberbullying? In their review Berne and colleagues (2013) found out that the majority of the definitions used in 44 instruments are focused on the fact that cyberbullying behaviour occurs through electronic devices/media and that these instruments mention the criterion of the intention to harm another person. The other bullying criteria – repetition and imbalance of power - are much less present, while the specific cyberbullying criteria are not present at all. We can speculate that the instruments in the review were developed a few years ago and, in parallel, specific cyberbullying criteria started to be proposed as part of the definition.

Thus, in cyberbullying literature, we can assert that the definitions vary widely, as do the corresponding operational definitions. The continuous evolution of ICTs creates the need for a continuous updating of the theoretical perspectives adopted by researchers. The devices/media used to assume cyberbullying behaviours were originally used to operationalize this phenomenon in questionnaires. Berne and colleagues (2013) found out that the most oft-included instruments were mobile phones and e-mail. Such a strong focus on constantly evolving types of electronic devices/media suggests that a tenuously-developed instrument can become inadequate in a short time. The authors suggested that it is difficult to choose which device/media is relevant to an investigation. The advent of smart phones, for example, made problematic the initial distinction used by researchers between "mobile phone" and "internet" bullying: the mobile phone became a form of PC that one can "always carry around" (Slonje et al., 2013). At the same time, in a study on the structural factor of cyberbullying scales (Menesini et al., 2011), the bi-dimensional structure based on the distinction between phone and PC showed a preliminary adequate fit, but the high factors' correlation did not allow for the confirmation of this distinction; normally, young people use different types of technology in parallel, and often these two electronic devices have similar/overlapping functions.

Studies have shown that different types of cyberbullying can be classified with regard to specific aspects, such as the covert or overt nature of the acts or the specific types of behaviour (e.g., exclusion, verbal attack, photos, taking personal information, etc.; Schultze-Krumbholz & Scheithauer, 2009; Slonje et al., 2013; Slonje & Smith, 2008; Spears, Slee, Owens, & Johnson, 2009; Menesini & Nocentini, 2009). Starting from Willard's (2007) list of cyberbullying behaviours, Menesini and colleagues defined a classification based on the nature of the attack and they used it in both cross-cultural studies cited above (Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010): **Written-Verbal behaviours**

include acts that use the written or the verbal form of cyberbullying (i.e., phone calls, text messages, and e-mails); **Visual behaviours** include attacks perpetrated by the use of visual forms of cyberbullying (i.e., posting compromising images and videos); **Impersonation behaviours** refer to more sophisticated attacks based on identity theft (i.e., revealing personal information using another person's account); **Exclusion behaviours** are related to the delineation of those individuals considered to be members of the in-group and out-group (i.e., intentionally excluding someone from an online group). While it is considered that the relevant criteria in the cyberbullying definition are the same across the four types of behaviours and across different countries (Menesini, Nocentini, Palladino, et al., 2012), the importance of this distinction for assessment purposes is yet to be confirmed.

## 1.2. Psychometric problems of the existing instruments assessing cyberbullying

Besides some of the definitional problems reported above, Berne and colleagues (2013) identified several psychometric problems in a review that analyzed 44 instruments published prior to October, 2010. Primarily, it was found that 1) almost all the instruments included in the review were self-report questionnaires and 2) they often lacked detailed statistical analyses in testing psychometric properties. The most serious shortcoming was related to the absence of factor analysis in determining the measures' subscales (construct validity). In many instruments, the subscales were determined by a theoretically-based approach and not by a psychometric evaluation of the structure of the questionnaire. Convergent validity was the only other type of validity that Berne and colleagues pointed out in their review, and it was reported only in 27% of the reviewed studies. Another point raised was related to the reliability of the instruments they analyzed. Only in 18 out of 44 studies was reported internal consistency. In particular, the authors marked the lack of longitudinal data and the absence of test-retest analyses as contributing factors to this issue.

In our research group, we recently developed an instrument named the Cyberbullying and Cybervictimization Scales, which were described by Menesini, Nocentini, & Calussi (2011), and were compatible with the theoretical perspective adopted in other studies on cyberbullying (Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010; Palladino, Nocentini, & Menesini, 2011). A CFA indicated that the structure for perpetrated and received behaviours in both genders was best represented by a mono-dimensional model: the

high factors' correlation did not support the distinctions in a bi-dimensional structure based on the distinction between written–verbal and visual acts, although the models showed an adequate fit. The authors pointed out in their conclusion that those findings were related to the low number of items considered for visual acts. They suggested consider a larger number of items and more differentiated behaviours along this category of visual acts in future studies. Recently, following the new criteria reported in the field literature and the developments of ICT, we revised the measure to include new items in attempt to construct a more sophisticated instrument that detects different types of attack and specific subscales. This new version of the scales has been called "Florence CyberBullying-cyberVictimization Scales" (FCBVSs).

## 2. AIMS

The aim of the present study is to analyze the psychometric properties of the FCBVSs. Specifically, we want to analyse the construct validity (factorial structure and measurement invariance across genders), the concurrent and convergent validity, and the reliability, considering both internal consistency and test/retest reliability in a sample of Italian adolescents.

## 3. MATERIALS AND METHODS

## 3. 1.    Participants and procedure

The participants consist in the control and the experimental groups of two quasi-experimental trials of the *Noncadiamointrappola!* program 3rd Edition carried out during the 2011/2012 and 2012/2013 school years (9th grade). We also collected data of other students attending the same schools involved in the program (10th and 11th grades). The students responded to the questionnaire during the pre-test evaluation in fall of 2012 and fall of 2013 (November through the beginning of December). The overall number of participants was 1142 adolescents (54.5 % males), enrolled in 8 high schools in Tuscany, Italy, ranging in age from 13 to 20 years. The mean age was 15.18 years (SD=1.12). [5]

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[5] See the 3rd chapter of the present dissertation for further details about the sample selection.

## 3. 2.    Measures

FLORENCE CYBERBULLYING- CYBERVICTIMIZATION SCALES (FCBVSs)

Following our classification based on four types of cyberbullying behaviours, (written-verbal; visual attacks, exclusion and impersonation; Menesini, Nocentini, et al., 2012; Nocentini et al., 2010; Palladino et al., 2011), we created a revised version of the Cyberbullying and Cybervictimization Scales described by Menesini, Nocentini, and Calussi (2011). This revised version consists of two scales, one for perpetration and one for victimization. Specifically, each item, which covers a certain type of behaviour, was specified for perpetration and victimization[6]. Both scales included the 10 items of the previous version, plus new ones, totalling to 18 items, that asked how often the subjects had experienced particular behaviours/events during the past couple of months. Each item was evaluated on a 5-point scale: 1="Never", 2="Once Or Twice", 3="One or Two Times at Month", 4="Once A Week", 5="Several Times A Week."

The two scales are composed as follows:

- 7 items regarding Written-Verbal behaviours (i.e. "receiving  threatening and insulting text message" for cybervictimization and "sending  threatening and insulting text messages" for cyberbullying);

- 4 items regarding Visual behaviours (i.e. "receiving videos/photos/pictures of embarrassing or personal situations on internet (e-mail, web sites, YouTube, Facebook..)" for cybervictimization and "sharing  videos/photos/pictures of embarrassing or personal situations on internet (e-mail, web sites, YouTube, Facebook)" for cyberbullying);

- 3 items regarding Exclusion behaviours (i.e. "being  ignored on purpose in an online group" for cybervictimization and "ignoring  someone on purpose in an online group" for cyberbullying);

- 4 items regarding Impersonation behaviours (i.e. "somebody stole my personal information (images, photos..) in order to  reuse them" for cybervictimization and "I stole personal information (images, photos..) in order to reuse them" for cyberbullying).

The scales are introduced by the following sentence: "Cyberbullying is a new form of bullying which involves the use of text messages, photos and video, phone calls, e-mail, instant messaging

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[6] For example the item n°8 (see table 1) about *violent videos/photos/pictures by mobile phone* was definite for cybervictimization as "receiving videos/photos/pictures of embarrassing or personal situations on internet (e-mail, web sites, YouTube, Facebook..)" and for cyberbullying as "sharing  videos/photos/pictures of embarrassing or personal situations on internet (e-mail, web sites, YouTube, Facebook)".

and chat rooms, blogs, web-sites, role-playing games and social networks...". A definition of cyberbullying is not explicitly presented: the FCBVSs is presented after the Florence Bullying-Victimization Scales (FBVSs). The FBVSs are in turn introduced by a sentence explaining the definitional criteria for bullying. This order of questionnaire presentation is required in order to minimize the participant's potential difficulties in differentiating between (cyber)bullying and jokes, or between (cyber)bullying and violent aggression (See Appendix 1 for further details about FBVSs).

YOUTH SELF REPORT (YSR)

The Youth Self-Report (Achenbach, 1991b) is a self-report questionnaire for subjects aged 11-18 years and was modelled on the CBCL, a parent questionnaire for the assessment of psychopathology in children and adolescents (Achenbach, 1991a). The response format for the 103 problem items is 0= not true; 1=somewhat or sometimes true, and 2=very true or often true. The YSR can be scored on various syndrome scales: withdrawn, somatic complaints, anxious/depressed, together constituting the Internalising Scale; delinquent behaviour and aggressive behaviour together constitute the Externalising Scale.

GLOBAL KEY QUESTIONS ON CYBERBULLYING AND CYBERVICTIMIZATION

In the questionnaire package we included two additional items on students' involvement in cyberbullying attacks and cybervictimization experiences starting from the Olweus (1996) global key question for bullying and victimization. These items, after a definition of the constructs, assessed the frequency of students' involvement in cyberbullying and cybervictimization experiences. The frequency items are rated on a 5-point Likert-type scale ranging from 0 (not at all), 1 (once or twice), 2 (two or three times a month), 3 (every week), and 4 (several times a week).

## 3. 3.    Overview of the Analyses

CONSTRUCT VALIDITY

All the analyses were conducted via Mplus 7.0 (Muthén & Muthén, 1998-2007). Given the non-normality of the items' distribution, in the **Confirmatory Factor Analyses** we used missing data MLR estimator to obtain robust estimates (Yuan & Bentler, 2000).

First, we tested three different dimensional models for both cyberbullying and cybervictimization using separate CFA in the entire sample:

**(a.)** 5 factor models, distinguishing the four type of behaviours - written-verbal (items: 1, 3, 4, 5, 7); visual (items: 2, 6, 8, 10); impersonation (items: 11, 13, 15, 17) and exclusion (items: 12, 16, 18) - plus another specific factor that could be defined as "spreading false rumours" (items: 9 and 14). These last two items were preliminary defined as "verbal" behaviours but, given the controversy found in the literature, we decided to test whether they could define another kind of behaviour or they could fit into the written-verbal subscale (as originally supposed) .

**(b.)** 4 factors models distinguishing the four types of behaviours.

**(c.)** second order factor models (Cyberbullying/ Cybervictimization)

**(d.)** mono-dimensional models;

The assumptions and decisions that guided these analyses were: (i) for four- and five-factor solutions, each item would be associated with only the factor that it was designed to measure, and all the other coefficients would be fixed to zero, (ii) the four and five factors would be allowed to covary, and (iii) post-hoc model fitting would be kept to a minimum; correlated error terms would be allowed if supported by a strong substantive and/or empirical rationale.

All of the models were evaluated by means of the following overall indices: the chi-square ($\chi^2$) statistic, the root-mean-squared error of approximation (RMSEA), and the comparative fit index (CFI). Recommended cut-off points for these measures are 0.08 (Brown, Cudek, 1993) or 0.06 (Hu, Bentler, 1998) for RMSEA and 0.90 or 0.95 for CFI (Bollen, 1989).

The scale must have measurement equivalence across groups in order to have no meaningful differences between groups (Collins, Raju, Edwards, 2000). Measurement invariance refers to "whether or not, under different conditions of observing and studying phenomena, measurement operations yield measures of the same attribute" (Horn, McArdle, 1992, p. 177). Therefore, we conducted the Multiple-Group Analysis across genders.

We followed this set of models defined by Muthén & Muthén (1998-2007, p. 399) in order to test the **measurement invariance** of our continuous outcomes, listed from the least restrictive to the most restrictive:

I. "Intercepts, factor loadings, and residual variances free across groups with factor means fixed at zero in all groups" *Configural Invariance*;

II. "Factor loadings constrained to be equal across groups; intercepts and residual variances free; factor means fixed at zero in all groups" *Metric Invariance-Weak Invariance*;

III. "Intercepts and factors loadings constrained to be equal across groups; residual variances free; factor means zero in one group and free in the others" *Scalar Invariance- Strong Invariance*;

Thus, the configural invariance was tested through the basic model based on equality of form model, testing the same model with the same pattern of fixed or free parameters without constraints across groups (*Unconstrained Model*). Metric and Scalar invariance were tested through models in which pattern factor loadings and intercepts are constrained to be equal across groups *(Constrained Models)*. These models are nested in the basic model.

In addition to the mentioned overall fit indices, the evidence for factorial invariance was tested through the significance of the difference in the $\chi^2$ value between the nested models. If the difference between test results was significant, indicating that the null hypothesis was not supported, we would proceed by applying a partial invariance test, thus relaxing some but not all manifest measures across groups (Vandenberg, Lance, 2000). For this purpose, we relied upon information derived from Modification Indices (we considered Modification Indices higher than 10). In computing the chi-square difference test, we used the scaling correction factors because we applied MLR estimator[7]. We tested for measurement invariance which defines whether each element of the respective matrices is equal in all groups. This is called *full measurement invariance* and is a widely acknowledged statistical method. At the same time, some authors (Byrne et al., 1989) pointed out that such requirement may be too strict and unrealistic for group comparisons. Consequently, the concept of *partial invariance* in which only a subset of parameters in each matrix must be invariant whereas others are allowed to vary between the groups was introduced. Byrne et al. (1989) argued that at least two indicators must be invariant to ensure the meaningfulness of latent mean comparisons.


CONCURRENT VALIDITY AND CONVERGENT VALIDITY

**Concurrent validity** is demonstrated when a test correlates well with a measure that has previously been validated and both are measured at the same time. In order to assess the concurrent validity of the factors (both first and second order), we correlated them with global key questions on cyberbullying and cybervictimization.

**Convergent validity** evaluates to which degree the instrument is correlated with other constructs that were assessed at the same measurement point and which are, based on theoretical assumptions, expected to be related to the construct. In order to assess the

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[7] Consult the Mplus webpage http://www.statmodel.com/chidiff.shtml for further details about the formula we used.

convergent validity of the factors found (both first and second order), we correlated them with the Externalising Scale (cyberbullying scales) and the Internalising Scale (cybervictimization scales). The link between cybervictimization and internalizing problems is documented in the literature as well as the relation between cyberbullying and externalizing problems (Bauman et al., 2013; Cooper et al., 2012; Garaigordobil, 2011; Gradinger et al., 2009; Hinduja & Patchin, 2010; Menesini, Calussi, et al., 2012).

RELIABILITY

In order to evaluate the reliability of the scales, we analysed the **internal consistency** (Cronbach's alpha) and the **test/retest reliability** (Pearson's *r* correlations). For the second analysis, we used data from the second wave – collected three months after the pre-test measure- and assessed its relation to the control group (*Noncadiamointrappola!* program 2011/2012).

## 4. RESULTS

Descriptive statistics for items, subscales and labels of both cyberbullying and cybervictimization scales are reported in Table 1.

Table 2 presents the frequency of item 2 for cyberbullying and cybervictimization (absence vs. presence of those behaviours in the sample). Given the markedly low frequency of these 2 items (less than 3% of the sample declared that they were involved in these behaviours), they were excluded from further analyses. No other items showed such low frequencies regarding the presence of behaviours.

Items n°4 showed problematic results in a previous study using IRT model (Menesini et al., 2011) -low discrimination of those items- and we excluded them from the present analyses. Therefore, all the models tested have a starting configuration based on 16 items.

| SUBSCALE | | CYBERVICTIMIZATION | | | | | CYBERBULLYING | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | Min | Max | Mean | SD | N | Min | Max | Mean | SD |
| 1. threatening and insulting text message | **WV** | 1121 | 1 | 5 | 1,14 | 0,50 | 1121 | 1 | 5 | 1,14 | 0,50 |
| 2. violent videos/photos/pictures by mobile phone | **V** | 1119 | 1 | 5 | 1,04 | 0,27 | 1119 | 1 | 5 | 1,04 | 0,27 |
| 3. threats and insult on internet (web sites, chat-rooms, blogs, msn, facebook, twitter,myspace). | **WV** | 1119 | 1 | 5 | 1,22 | 0,56 | 1119 | 1 | 5 | 1,22 | 0,56 |
| 4. silent/prank phone calls | **WV** | 1115 | 1 | 5 | 1,59 | 0,91 | 1115 | 1 | 5 | 1,59 | 0,91 |
| 5. threatening and insulting emails | **WV** | 1118 | 1 | 5 | 1,07 | 0,38 | 1118 | 1 | 5 | 1,07 | 0,38 |
| 6. videos/photos/pictures of embarrassing or personal situations by mobile phone | **V** | 1117 | 1 | 5 | 1,11 | 0,44 | 1117 | 1 | 5 | 1,11 | 0,44 |
| 7. threatening and insulting phone calls | **WV** | 1115 | 1 | 5 | 1,09 | 0,40 | 1115 | 1 | 5 | 1,09 | 0,40 |
| 8. violent videos/photos/pictures shared on internet | **V** | 1116 | 1 | 5 | 1,09 | 0,42 | 1116 | 1 | 5 | 1,09 | 0,42 |
| 9. phone calls with rumors about me | **WV** | 1117 | 1 | 5 | 1,26 | 0,65 | 1117 | 1 | 5 | 1,26 | 0,65 |
| 10. videos/photos/pictures of embarrassing or personal situations on internet (e-mail,web sites,youtube,facebook..) | **V** | 1114 | 1 | 5 | 1,11 | 0,44 | 1114 | 1 | 5 | 1,11 | 0,44 |
| 11. manipulating  private personal data in order to reuse them | **I** | 1115 | 1 | 5 | 1,09 | 0,36 | 1115 | 1 | 5 | 1,09 | 0,36 |
| 12. ignoring on purpose in an online group | **E** | 1117 | 1 | 5 | 1,11 | 0,43 | 1117 | 1 | 5 | 1,11 | 0,43 |
| 13. theft of personal information (images, photos..) in order to reuse them | **I** | 1112 | 1 | 5 | 1,11 | 0,41 | 1112 | 1 | 5 | 1,11 | 0,41 |
| 14. rumors on internet | **WV** | 1117 | 1 | 5 | 1,20 | 0,57 | 1117 | 1 | 5 | 1,20 | 0,57 |
| 15. theft of password and account (e mail, Facebook…) | **I** | 1115 | 1 | 5 | 1,22 | 0,57 | 1115 | 1 | 5 | 1,22 | 0,57 |
| 16. exclusion from an on line group (chats, forum, Facebook groups..) | **E** | 1110 | 1 | 5 | 1,09 | 0,40 | 1110 | 1 | 5 | 1,09 | 0,40 |
| 17. theft and use of phone book | **I** | 1115 | 1 | 5 | 1,07 | 0,34 | 1115 | 1 | 5 | 1,07 | 0,34 |
| 18. block in a chat or on facebook in order to exclude from the group. | **E** | 1114 | 1 | 5 | 1,15 | 0,47 | 1114 | 1 | 5 | 1,15 | 0,47 |

**Table 1 Items descriptive statistics both for cybervictimization and cyberbullying.**

*Note:* WV= Written-Verbal behaviours; V= Visual behaviours; E= Exclusion behaviours; I= Impersonation behaviours.

|  | CVITT_2 | | CBULL_2 | |
| --- | --- | --- | --- | --- |
|  | **n** | **%** | **N** | **%** |
| Never | 1087 | 97,1 | 1087 | 97,8 |
| From "only once or twice" to "several times at week" | 32 | 2,9 | 25 | 2,2 |
| Total | 1119 | 100,0 | 1112 | 100,0 |

**Table 2  Frequencies of items n°2 for cybervictimization and cyberbullying.**

## 4. 1.  Confirmatory Factor Analyses

FACTORIAL STRUCTURE

Table 3 shows fit indices for all tested models.  The first one **(a)** (5 factors model, 16 items) demonstrated adequate fit indices with the exception of the $\chi^2$ statistic, which was significant. However, factor's correlations between "impersonation" and "spreading false rumours" were very high (cybervictimization: 0.745; cyberbullying: 0.879), while correlations between "written-verbal" and "spreading false rumours" were 0.604 for cyberbullying and .664 for cybervictimization. These results did not allow us to consider those items (9 and 14) as written-verbal behaviours – nor consider them separately as "spreading false rumours". At the same time, we could not theoretically accept to insert these two items regarding spreading false rumours into the "impersonation" factor.  Given these controversial results, we decided to discard these items in the following analyses. Thus, both cyberbullying and cybervictimization 4-factor models **(b)** started on a configuration based on 14 item; they showed adequate fit indices with the exception of the $\chi^2$ statistic that was significant. In order to improve the fit indices for cybervictimization, following the MI (Modification Indices), we added a correlation between item 16 and item 12 residuals (MI=18.935) (Model **b1**). They were both in the same factor (Exclusion) and this decision was supported by the fact that and they share the same words ("being ignored on purpose in an *online group*" and "being excluded from an *online group"*) and that they were highly congruent in their meaning. The models (b1) show better fit indices for cybervictimization.

 The second order factor models **(c)** showed adequate fit indices for both constructs with significant factor loading higher than .50 (see Table 3). On the contrary, both mono-dimensional models **(d₁)** and **(d₂)**, based on 16 items and 14 items, respectively, did not show adequate fit indices.

Overall, considering the high correlations between two factors of the models based on 5 factors (16 items) and the not acceptable fit indexes of unidimensional models, we considered

the models based on 14 items and 4 factors (**b**), releasing the correlation between two residuals for cybervictimization (**b1**), the best and more parsimonious models both for cybervictimization and cyberbullying. In Figure 1 and Figure 2 the final models for cybervictimization and cyberbullying are represented showing factor loading and factors correlations. All factor loadings estimates for the models based on 14 items varied from .46 to .85, indicating a strong association between the latent constructs and their items. Correlations between the four factors ranged from .33 to .56 for cybervictimization and from .36 to .61 for cyberbullying. The second order models (cybervictimization and cyberbullying) based on those 4 factors models appear to be fit good with data (**c**).

| | $\chi^2$ | Gl | P | CFI | RMSEA | N |
|---|---|---|---|---|---|---|
| **CYBERVICTIMIZATION** | | | | | | 1123 |
| Model CV (**a**) | 158.961 | 94 | 0.000 | 0.930 | 0.025 | |
| Model CV (**b**) | 127.018 | 71 | 0.000 | 0.922 | 0.027 | |
| **Model CV (b1)** | **105.104** | **70** | **0.004** | **0.951** | **0.021** | |
| **Model CV (c)** | **131.973** | **72** | **0.002** | **0.944** | **0.022** | |
| Model CV ($d_1$) | 400.607 | 104 | 0.000 | 0.682 | 0.050 | |
| Model CV ($d_2$) | 339.638 | 77 | 0.000 | 0.635 | 0.055 | |
| **CYBERBULLYING** | | | | | | 1115 |
| Model CB (**a**) | 165.041 | 94 | 0.000 | 0.908 | 0.026 | |
| **Model CB (b)** | **123.321** | **71** | **0.000** | **0.917** | **0.026** | |
| **Model CB (c)** | **130.112** | **73** | **0.000** | **0.912** | **0.026** | |
| Model CB ($d_1$) | 330.445 | 104 | 0.000 | 0.707 | 0.044 | |
| Model CB ($d_2$) | 267.570 | 77 | 0.000 | 0.696 | 0.047 | |

**Table 3 Fit Indices of Confirmatory Factor Analysis.**
*Note:* Model (**a**): Five factors, 16 items (written-verbal: 1, 3, 4, 5, 7; visual: 2, 6, 8, 10; impersonation: 11, 13, 15, 17; exclusion: 12, 16, 18; spreading false rumours: 9, 14). Model (**b**): four factors, 14 items (written-verbal: 1, 3, 5, 7; visual: 6, 8, 10; impersonation: 11, 13, 15, 17; exclusion: 12, 16, 18); Model (**b1**) for cybervictimization: four factors, 14 items with a correlation among item16 and item 12 residuals; Model (**c**): second order models (cyberbullying/ cybervictimization), 14 items, 4 first order factors (written-verbal: 1, 3, 5, 7; visual: 6, 8, 10; impersonation: 11, 13, 15, 17; exclusion: 12, 16, 18), a correlation among item 16 and item 12 only for cybervictimization; Model (**$d_1$**): mono-dimensional model, 16 items; Model (**$d_2$**): mono-dimensional model 14 items.
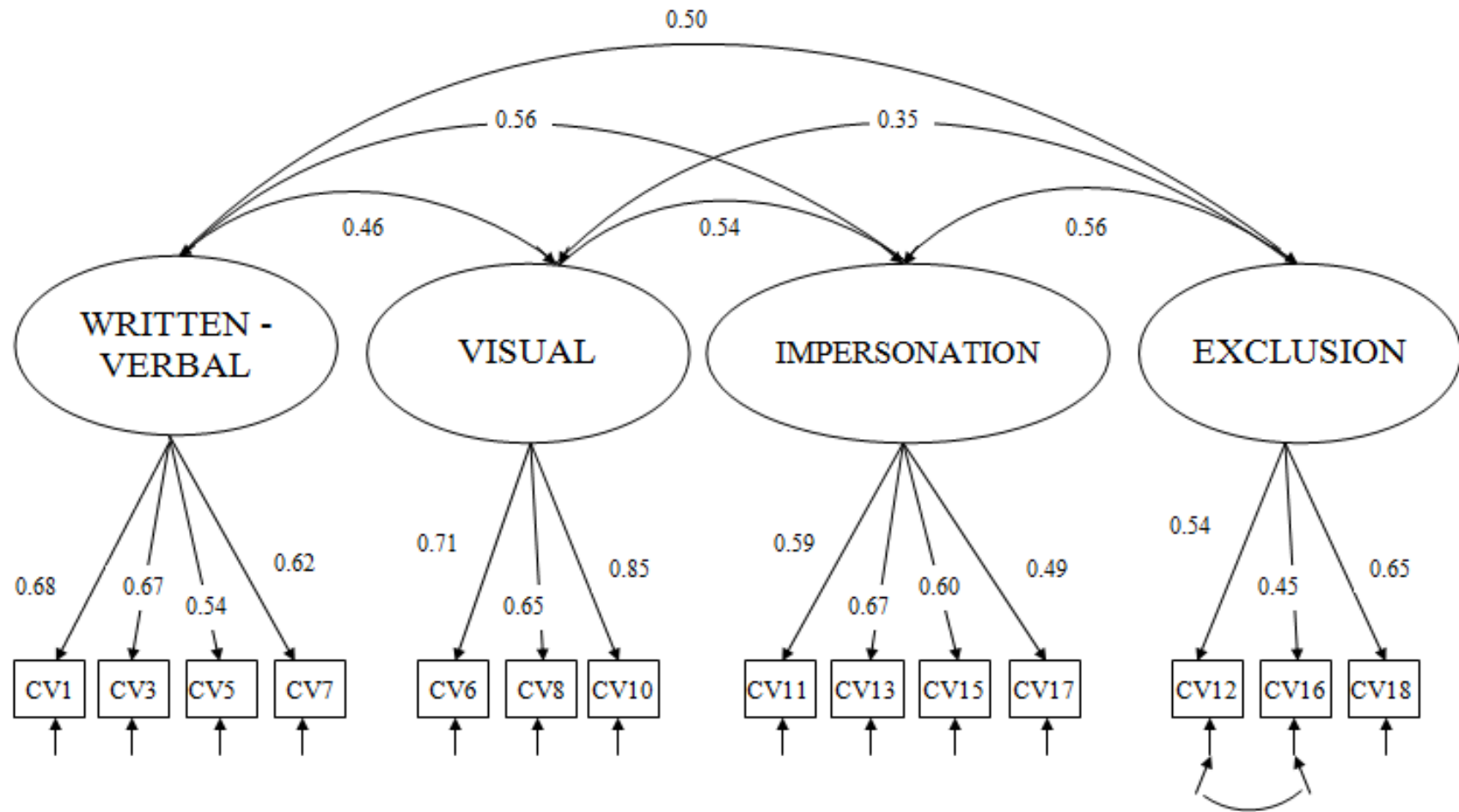
**Figure 1 Factor loadings and factors correlations of final cybervictimization model (b1). All parameters are significant at p≤.001**
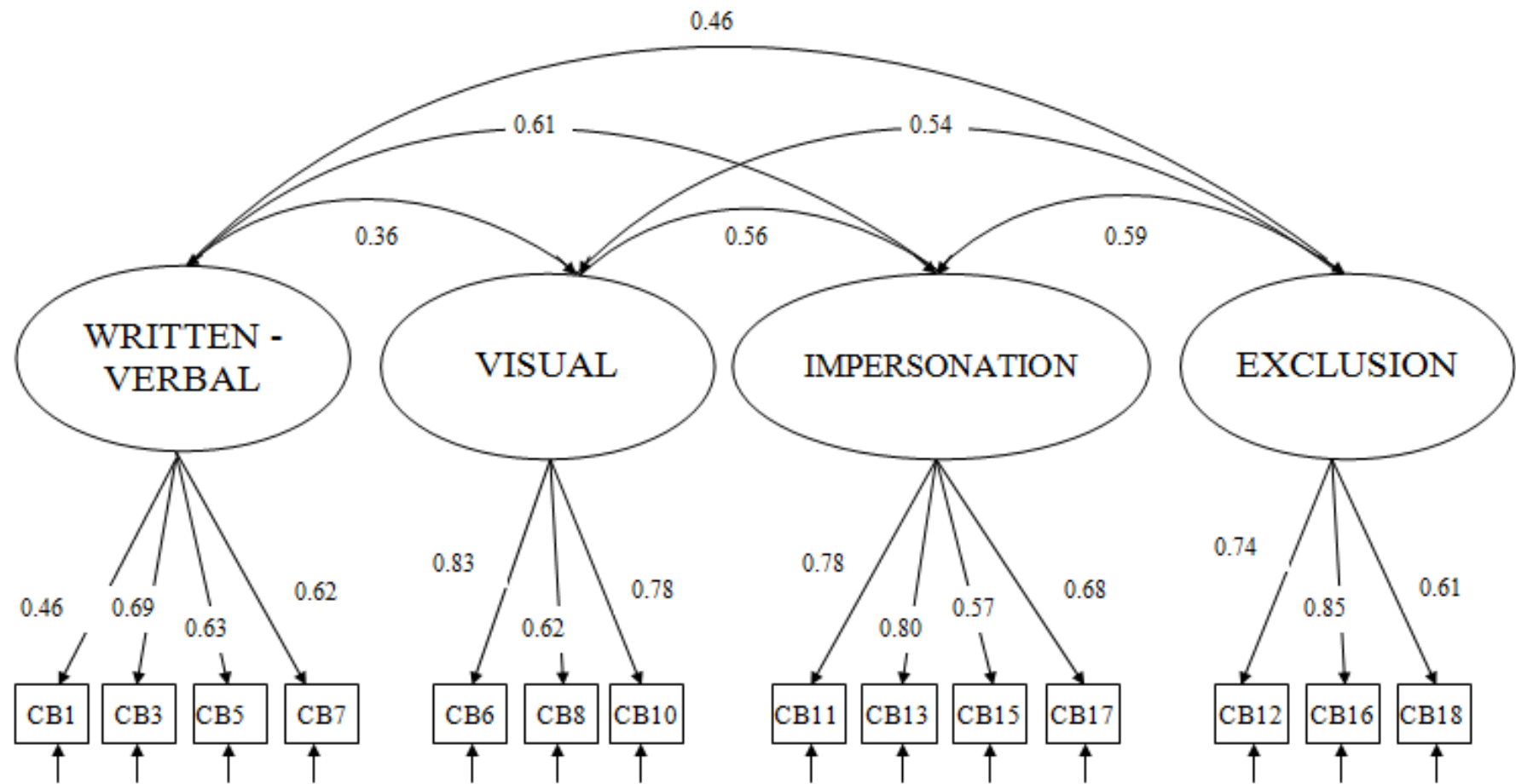
**Figure 2 Factor loadings and factors correlations of final cyberbullying model (b). All parameters are significant at p≤.001**

Table 4 and Table 5 display the test results for measurement invariance across the two groups (males and females, respectively). All models were based on Model CV (b1) Model CB (b) (see Table 3).

*Cybervictimization*

The initial Model A that assessed configural invariance resulted in an acceptable fit. The second step, testing full metric invariance (Model B) failed to yield an acceptable fit: the chi-square increment was significant. Relaxing the constraints for two factor loadings (Model B1 - item 17 and item 8 factor loadings) yielded a non-significant difference compared to the configural invariant model (Model A), indicating that a Partial Metric Invariance was confirmed.

The fully scalar model (Model C) also failed a test of invariance (significant chi-squared increase). However, after relaxing the constraints for item 18 and item 1 intercepts (Model C1), the increment was no longer significant.

In conclusion we discovered *strong measurement invariance* for Cybervictimization scale.

*Cyberbullying*

The initial model A that assessed configural invariance (Model A) resulted in an acceptable fit. The second step, testing full metric invariance (Model B) also yielded an acceptable fit; the chi-square increment was not significant. The full scalar invariant model (Model C) failed as the chi-square increased significantly. Relaxing the constraints for two intercepts for item 18 and item 1 (Model C1) yielded a non-significant difference compared to the metrically invariant model (Model B).

In conclusion we discovered *strong measurement invariance* for Cyberbullying scale.

| Cybervictimization Model | Compared Model | $\chi^2$ (df) | Scaling Correction Factor for MLR | $\chi^2$ Difference Test | RMSEA | AIC |
|---|---|---|---|---|---|---|
| A | Configural Invariance | 299.852 (140) | 2.991 | | 0.045 | 14303.731 |
| B | Full Metric Invariance | A | 310.968 (150) | 3.415 | * | 0.044 | 14448.954 |
| B1 | Partial Metric Invariance | A | 284.007(148) | 3.336 | n.s. | 0.040 | 14338.445 |
| C | Full Scalar Invariance | B1 | 303.355(158) | 3.185 | * | 0.040 | 14337.184 |
| C1 | Partial Metric Invariance | B1 | 299.351 (156) | 3.211 | n.s. | 0.040 | 14336.249 |

**Table 4  Tests results for measurement invariance across the two groups (Males Group N= 573; Females Group N=550)**
**(* p≤.05; n.s. not significant).**
*Note:* B1 model: following the MI, we released the constraints for item 17 and item 8 factor loadings; C1 model: we released the constraints for item 18 and item 1 intercepts

| Cyberbullying Model | | Compared Model | $\chi^2$ (df) | Scaling Correction Factor for MLR | $\chi^2$ Difference Test | RMSEA | AIC |
|---|---|---|---|---|---|---|---|
| A | Configural Invariance | | 306.824(142) | 4.201 | | 0.046 | 2711.593 |
| B | Full Metric Invariance | A | 318.338(152) | 4.775 | n.s. | 0.044 | 2922.651 |
| C | Full Scalar Invariance | B | 339.544(162) | 4.519 | * | 0.044 | 2917.141 |
| C1 | Partial Metric Invariance | B | 332.147 (160) | 4.593 | n.s. | 0.044 | 2912.288 |

**Table 5 Tests' results for measurement invariance across the two groups (Males Group N= 566; Females Group N=549) (\* p≤.05; n.s. not significant).**
*Note:* C1 model: we released the constraints for item 11 and item 15 intercepts

## 4. 2.    Concurrent and Convergent Validity

CONCURRENT VALIDITY

In Table 6, correlations between the four factors are shown, as are the second order factors of the two versions (cybervictimization and cyberbullying) and the global key questions regarding cyberbullying and cybervictimization.

All of the correlations are statistically significant. The correlations with the second order factors are stronger, furnishing a better concurrent validity of the $2^{nd}$ order factors. The weakest correlation is between the cybervictimization global key question and Exclusion factor for cybervictimization (.13). The strongest are between cybervictimization/cyberbullying global key questions and the Written–Verbal factors (respectively .47 and .39) and between cyberbullying key question and exclusion (.40).

| | CYBERVICTIMIZATION GLOBAL KEY QUESTION | CYBERBULLYING GLOBAL KEY QUESTION |
|---|---|---|
| **WRITTEN-VERBAL** | .47 | .39 |
| **VISUAL** | .26 | .23 |
| **IMPERSONATION** | .27 | .33 |
| **EXCLUSION** | .13 | .40 |
| **II ORDER FACTOR** | .41 | .48 |

**Table 6 Correlations between factors and Global Key Question. All coefficients (Pearson' *r*) are significant at p≤.001 with the exception of the visual factor (p<.05)**

CONVERGENT VALIDITY

In Table 7 and Table 8, correlations between the four factors and the second order factors and the scales of the YSR are shown. In particular, for cybervictimization, all of the correlations to the internalizing problems are significant, though for the visual subscale Pearson's *r* is weak (.08). Similarly, the correlations between cyberbullying factors and externalizing problems are significant, although we again found low correlation ($r = .18$) for visual subscales.

| Cybervictimization scale | INTERNALIZING PROBLEMS |
|---|---|
| WRITTEN-VERBAL | .26 |
| VISUAL | .08 |
| IMPERSONATION | .21 |
| EXCLUSION | .22 |
| II ORDER FACTOR - CYBERVICTIMIZATION | .27 |

**Table 7 Correlations between the 4 factors and the second order factor of cybervictimization scale and Internalizing Problems (YSR scale). All coefficients (Pearson'r) are significant for p=.000 with the exception of visual (significant for p≤.05)**

| Cyberbullying scale | EXTERNALIZING PROBLEMS |
|---|---|
| WRITTEN-VERBAL | .30 |
| VISUAL | .15 |
| IMPERSONATION | .27 |
| EXCLUSION | .27 |
| II ORDER FACTOR - CYBERBULLYING | .35 |

**Table 8 Correlations between the 4 factors and the second order factor of cyberbullying scale and Externalizing Problems (YSR scale). All coefficients (Pearson'r) are significant for p≤.001**

## 4. 3.    Reliability

INTERNAL CONSISTENCY

In Table 9, Cronbach's alpha coefficients are shown. Overall, the scales – the four factors and the second order factors - showed an adequate reliability level. The lowest ones are about impersonation (.63) and exclusion (.65) factors for cybervictimization.

|  | CYBERVICTIMIZATION | CYBERBULLYING |
|---|---|---|
| **WRITTEN-VERBAL** | .72 | .70 |
| **VISUAL** | .76 | .78 |
| **IMPERSONATION** | .63 | .77 |
| **EXCLUSION** | .65 | .75 |
| **II ORDER FACTOR** | .79 | .85 |

**Table 9 Cronbach's Alphas for the first order factors and for the second order factor.**

TEST-RETEST RELIABILITY

In Table 10, correlations between the scales pre-test score and the same measure 3 months later (control group of *Noncadiamointrappola!* program first quasi-experimental trial, scholastic year 2011/2012) are shown. Overall, the scales – the four factors and the second order factors - showed acceptable levels of test-retest reliability.

|  | CYBERVICTIMIZATION | CYBERBULLYING |
|---|---|---|
| **WRITTEN-VERBAL** | .35 | .25 |
| **VISUAL** | .16 | .29 |
| **IMPERSONATION** | .22 | .47 |
| **EXCLUSION** | .25 | .16 |
| **II ORDER FACTOR** | .21 | .27 |

**Table 10 Pearson's *r* correlations within the factors 3 months later (N = 249). All coefficients are significant for p≤.001 with the exception of visual cybervictimization and exclusion cyberbullying significant for p≤.05**

## 5. DISCUSSION AND CONCLUSION

Starting from the scales initially created by Smith and colleagues (2006) and later adapted by Menesini, Nocentini and Calussi (2011), we developed the Florence CyberBullying-cyberVictimization Scales (FCBVSs). The underlying approach considers cyberbullying as a multidimensional construct (Menesini & Nocentini, 2009) which shares many aspects with traditional bullying. At the same time, we are aware that the specificities of the context can play an important role in this phenomenon. For this reason, in order to better understand the phenomenon and its relations with other constructs, and to have a good measure to detect effects of interventions, we analysed all of the psychometric aspects of this multidimensional self-report instrument. The questionnaire covers four types of behaviour, describing different attacks made by peers in the cyber context (Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010). In order to analyze the construct validity of the instrument, we tested the factorial structure of the cyberbullying and cybervictimization scales. For both, the best final model resulting by the CFA is a model with four factors and is based upon fourteen items that cover the same types of attack for victims and perpetrators. The factors are: written-verbal (four items), visual (three items), impersonation (four items) and exclusion (three items). The second order CFA confirmed that a "global", second order measure of cyberbullying and cybervictimization fits well with data. Unlike findings based upon the first version of the questionnaire (Menesini et al., 2011), the constructs of cyberbullying and cybervictimization are not unifactorial.

The development of the instrument towards a more articulated dimensionality can lead to a better understanding of the phenomenon and to possible correlations with other behaviors. For instance, the questionnaire can contribute to the debate regarding the overlap between bullying and cyberbullying (Hinduja & Patchin, 2012; Koops, 2012; Menesini, 2012; Olweus, 2012a, 2012b; Smith, 2012), addressing questions such as whether there are specific factors of bullying (e.g. physical, relational, verbal) and cyberbullying that are highly correlated, or whether there are aspects of both phenomena that are generally independent. It could be possible to gain a better understanding of the health and psychological consequences of cyberbullying above and beyond the effects of bullying, for example, by addressing the question of whether there are factors that are equally involved in determining the severity of the acts. It could also help to disentangle the issues about the additive, interactive, or synergistic effects played by the context and by the type of behaviour (Gradinger et al., 2009; Kowalski & Limber, 2013; Low & Espelage, 2013; Ortega et al., 2012). For instance, we can

hypothesize that indirect-relational type of bullying could be stronger related to negative outcomes for victims if the exclusion took place both in face-to-face and online people' worlds, cutting social boundaries all-round.

The theoretical approach underlying the four factors was originally derived from Willard's list of cyberbullying behaviours (2007) and was used in both cross-cultural studies cited above (Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010). While we know that the relevant criteria in the definition of cyberbullying are the same across different countries and across the four types of behaviours, this distinction was not empirically confirmed (Menesini, Nocentini, Palladino, et al., 2012). The results of the present study revealed that the theoretical approach we followed is consistent with the behaviours reported by adolescents for both the roles of victims and perpetrators alike. Considering the rapid evolution of ICTs, an approach based upon the reported behaviours may be quite fruitful as compared to cyberbullying classifications that are based upon the device/media used, which could be grow obsolete within a few short years (Slonje et al., 2013).

Unfortunately, items related to the "spreading false rumors" did not fit into our model in an acceptable way, both in terms of data-driven classification and theoretical classification approaches; for this reason, these items were removed. While we know that it is an important aspect in traditional bullying (Olweus, 1993), in our sample these behaviors are related to impersonation behaviours. It might be the case that some rumors are spread through one's own personal account, or that personal information is stolen from the victim, and this can explain why we found a higher correlation between rumors and impersonation. Certainly, further studies are needed to better clarify the role of this specific type of behaviour in the cyber context and specifically to measure it.

One of the most important fields in determining the accuracy of scales is measuring and understanding how different groups perform on a scale (Collins, Raju, Edwards, 2000). If the replicability of results across groups can be demonstrated, then the generalizability of the instrument and also of the theoretical construct can further bolster our confidence in the scale. We found strong measurement invariance for gender: the questionnaire is invariant among males and females. It measures the same factors in the same way for both genders: it means that it can be used properly to analyse specific gender related issues such as the prevalence rates, the relations with other constructs and with the consequences of cyberbullying.

The instrument shows good concurrent and convergent validity and adequate reliability coefficients both for internal consistency and test/retest reliability. Specifically, we found significant correlations with externalizing (for cyberbullying and its first order factors) and

internalizing symptoms (for cybervictimization and its first order factors). This is in line with the literature about the negative consequences of cyberbullying and cybervictimization on psychological well-being (Bauman et al., 2013; Cooper et al., 2012; Gámez-Guadix et al., 2013; Garaigordobil, 2011; Hinduja & Patchin, 2010; Menesini, Calussi, et al., 2012) and those results support the convergent validity of the instrument. We also correlated the sub-scales and the general second order factors with another common measure of the construct: the global key question (Menesini & Nocentini, 2009; Solberg & Olweus, 2003; Olweus, 1996). On one hand, the strong correlation that we found for the second order factors allow us to say something about the concurrent validity of the instrument: we are measuring cyberbullying phenomena in both approaches with a different depth of understanding about the phenomenon (Menesini & Nocentini, 2009). On the other hand, looking at the first order factors correlations, we may argue that in the students' perception, cyberbullying in general is largely defined in term of mainly written-verbal behaviours (higher correlations) both for victims and perpetrators. Conversely, the relationship between the general key question and exclusion behaviours is rather weak if we consider victims' point of view, while there is a strong correlation for the perpetrators. These discrepant results might be better understood if we consider the definitional criteria related to this behaviour. For example, the "intention to harm" is clearly present for cyberbullies, while could be not easily salient for victims when they are excluded. Besides, unexpectedly, the weakest correlation for cyberbullying key question is with visual behaviour. In general, the behaviours that are perceived and recognized as cyberbullying might not be viewed same way by victims and perpetrators. Regardless, a multidimensional scale is a good tool to test empirically the relation between the two measurement approaches for bullying in the cyber context, pointing out the strengths and limitations of both (Menesini & Nocentini, 2009). Further studies that employ multivariate analyses will help us also in clarifying the unresolved issue about the overlap between bullying and cyberbullying (Koops, 2012).

Berne and colleagues (2013) in their meta-analysis emphasized a lack of detailed statistical analyses in testing the psychometric properties of existing instruments that assess cyberbullying. Specifically, they found that few of them demonstrate good construct validity results, and the only other type of validity reported is convergent validity. Indications about reliability are reported in only a few studies, and internal consistency is the sole validation analysis. The present study addresses all of these problematic psychometric points: we found good evidence for the legitimacy of our cyberbullying definition as a construct, and this construct demonstrated acceptable convergent and concurrent validity, as well as for the

reliability (both internal consistency and test-retest) of the Florence CyberBullying and cyberVictimization Scales.

The FCBVSs represent a step forward for cyberbullying assessment instruments, as they are capable of evaluating the problem with consideration given to the different types of attack. The fact that these scales demonstrate good psychometric properties and measurement invariance in different population groups will allow for its widespread use.

Despite these strengths, there are still limitations that future studies need to address. Among these limitations, it is necessary to further explore the findings of concurrent validity in order to determine whether, and to what extent, a tool that uses a systematic scale along a continuum can  intersect with the traditional research based on a single item, and whether and how these measures can help us to better classify  those who are involved as (cyber)victims and as (cyber)bullies (Menesini & Nocentini, 2009; Solberg & Olweus, 2003). The factorial structure that we found was not tested in another different sample; as such, our results should be generalized to similar samples with regards to factor stability. Moreover, all of the analyses were done in a sample of adolescents. In order to have a broad-spectrum instrument, further studies are needed to verify the psychometric proprieties of the FCBVSs for different age groups. It will be interesting to adapt the scales to other countries in order to determine whether the factorial structure, the validity and reliability are stable in other cultures and if our findings can be generalized to other samples; it could allow us to make cross-cultural comparison of future findings.

# CHAPTER III

# EVALUATION OF THE EFFICACY OF
# *NONCADIAMOINTRAPPOLA!* PROGRAM

## 1. INTRODUCTION

In recent years, there has been an increase in attention to and demand for an evidence-based framework that can be used to inform interventions and policies that aim to reduce bullying (Eisner & Malti, 2012; Ttofi & Farrington, 2010). However, there is a significant game between these areas within European countries; while in some countries, policy implementation is derived from evidence-based research, other countries' focus on empirical principles is rather lax, and these principles are not well known amongst policy-makers. Especially in Northern Europe, the policy makers' interest in evidence-based prevention and intervention has begun to close the gap between research and prevention policy[8].

In their review on the effectiveness of school-based programs that aim to reduce bullying, Ttofi and Farrington (2011) found out multiple types of interventions, each of which possessing a different focus: bullies, victims, peers, teachers, or the school in general. The authors selected for their meta-analyses 44 studies; they included only studies in which the efficacy of the program was evaluated in the intervention group in comparison with a control group, those that required the control of extraneous variables in the evaluation by randomization (or pre-test measures of bullying), or choosing some kind of comparable control condition. Four types of research designs were included: a) randomized experiments, b) intervention-control comparisons with before-and-after measures of bullying, c) other

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[8] See for example the recent systematic review (Ttofi, Farrington, & Baldry 2008) evaluating the effectiveness of school-based prevention programs in reducing bullying perpetration and victimization: the project was initially conducted under the aegis of the Swedish National Council for Crime Prevention in order to find and implement the most efficacious component and programs. Another example is the effort of the Finnish Ministry of Education for the national roll-out of the Kiva evidence-based program to counteract bullying (Kärnä, Voeten, Little, Poskiparta, Alanen, et al., 2011).

intervention-control comparisons, and d) age-cohort designs. Contrary to previous reviews (Ferguson, Miguel, Kilburn, & Sanchez, 2007; Merrell, Gueldner, Ross, & Isava, 2008; Smith & Schneider, 2004; Vreeman & Carroll, 2007), they found that antibullying programs incurred in significant effects on school bullying although with results suggesting a small effect size (OR). Nevertheless, the authors stated that they correspond to a substantial amount of bullying prevented. Specifically, they attributed their significant results to the growing body of research (including more databases, recent publications, and unpublished studies) and to the more stringent inclusion criteria (e.g. clear focus on bullying, including only controlled evaluations). On average, they found that the programs included in their meta-analysis were effective and able to counteract the bullying phenomenon: perpetrated bullying decreased by approximately 20–23% and victimization by 17–20%.

If the interventions developed in the past are able to counteract bullying, which points are still problematic to be addressed by the research in order to optimize the marriage of policies and intervention programs?

Firstly, the authors (Ttofi & Farrington, 2011) analyzed the program elements and intervention components and they discovered that some of the most effective are: duration, intensity, parent training/meetings, disciplinary methods and improved playground supervision, classroom management, teacher training, classroom rules, a whole-school anti-bullying policy, school conferences, information for parents, videos and cooperative group work. Furthermore, they also found that work with peers was associated with an increase in victimization. This component evaluation could be a very important starting point in order to develop new intervention programs, or to modify existing interventions (Smith, Salmivalli, & Cowie, 2012). In another study (Fox, Farrington, & Ttofi, 2012), the authors attempted to draw more firm conclusions with regards to the specific components of anti-bullying programs that yield the best, and most reliable, results. Specifically, they concluded that the most effective characteristics of successful programs are: high intensity, extended durations (for both children and teachers), and complexity (i.e., having a systemic approach and containing several components such as parent training and/or playground supervision and so on). Moreover, several program components are associated to larger effect sizes, including parent training or meetings and teacher training. Fox and colleagues (2012) expressed hope that future programs comprising features and designs known to be most effective would be implemented, thus bolstering the overall effectiveness of anti-bullying programs. On the other hand, Smith and colleagues (2012) pointed out the need to be cautious in translating the

indications of Ttofi and Farrington (2011) into practice. Specifically, discussing the analytical procedure used in the meta-analyses, some definitional and historical issues, and recent empirical data, they warned that it is quite premature to derive policy from such tentative analyses (for example, precluding interventions that advocate against working with peers). Specifically, analyzing two program elements - use of disciplinary measures and working with peers - and one design feature -age of pupils - Smith and colleagues (2012) concluded that the work of Ttofi and Farrington (2011) is certainly a contribution to the advancement of knowledge in the area, but still suggest that more research is needed. At the same time, Smith et al. (2012) claim that it is too early to displace research that investigates controversial aspects of bullying prevention. As a global indication, they suggest to move from "whether program A works or not" (i.e., main effects studies) to uncovering factors that moderate intervention effectiveness in the sense of exploring "what works, for whom, and under what circumstances".

At this time, we can summarize that we do not yet have a clear understanding of the causal mechanisms that enhance the efficacy of a program also because research has focused primarily on the changes in the outcomes (i.e. behaviours) (Eisner & Malti, 2012). Few studies have been published (Malti, Ribeaud, & Eisner, 2012; Palladino, Nocentini, & Menesini, 2011) and little attention has been paid to the mediating and moderating processes that unfold in prevention programs; these factors are likely to strengthen our understanding of *why* some interventions work while others fail.

As a further point to address, Ttofi and Farrington (2011) express the need for future research with a more rigorous design and higher methodological standards. Reviews suggest much variation in the methodological quality of outcome evaluations (Farrington & Ttofi, 2011; Farrington & Ttofi, 2007; Ferguson et al., 2007; Fox, Farrington, & Ttofi, 2012; Merrell et al., 2008; Smith & Schneider, 2004; Vreeman & Carroll, 2007). While some studies meet high methodological standards, others suffer from factors such as: poor overall study design, low validity of core outcome measures, few to no measures of the implementation process, and insufficient report of study characteristics and analytic approaches (Eisner, 2009).

Another aspect of intervention research that may benefit from improved research techniques is the weakness in the theoretical bases of current intervention models. In their review, Ttofi and Farrington (2010, p.441) stated that "Many programs seem to have been based on common-sense ideas about what might reduce bullying rather than on empirically validated theories of why children bully, why children become victims, or why bullying events occur".

In summary, there are currently only a few studies that aim to evaluate the efficacy of antibullying interventions by trying to match a theoretical definition of the problem with the standards of evidence that are defined in the prevention science literature (Flay et al., 2005; Eisner & Malti, 2012; Ttofi & Farrington, 2011). This paucity is even more evident in relation to the recent expression of bullying in the new virtual context: so called "cyberbullying".

## 1.1. Counteracting cyberbullying: Few evaluated programs with different foci and goals

In the bullying intervention literature, we can see that many programs devised for traditional bullying can (arguably) be extended to tackle cyberbullying without drastic changes to their application. For instance, incorporating the topics of cyberbullying in the components of these programs, such as a whole-school anti-bullying policy and awareness-raising and curriculum-based activities, appear to be relatively effective (Slonje et al., 2013). From a perspective that originates at the overlap between both phenomena, it is assumed that similar processes concern both phenomena, and if we work on those processes, we may reduce (if not wholly prevent) both bullying and cyberbullying situations. At the same time, the peculiarities of the virtual context, such as the possible anonymity of the bully's identity, the potential to easily spread out anything online, the absence of direct feedback, the technical countermeasure that we can take online in order to be safe, etc., have led some researchers to speculate that specific prevention strategies are needed in the realm of cyberbullying beyond simply adapting traditional bullying intervention programs (Dooley et al., 2009; Kiriakidis & Kavoura, 2010; Kowalski & Limber, 2007; Tokunaga, 2010; Wingate et al., 2013).

In reviewing the literature regarding the efficacy of interventions contrasting cyberbullying, we found out that it is a relatively new area and there is a paucity of published peer-review studies (del Rey-Alamillo, Casas, & Ortega-Ruiz, 2012; Gradinger, 2013; Menesini, Nocentini, & Palladino, 2012; Palladino et al., 2012; Slonje et al., 2013; Williford et al., 2013; Wölfer et al., 2013) . Furthermore, this literature contains studies that are variant with regards to their degree of empirical/methodological rigour (Flay et al., 2005).

Specifically, we can cluster this literature into three primary groups:

- antibullying programs that are primarily target traditional bullying phenomenon, although they also have effects on cyberbullying (KiVa, ViSC);
- programs developed to deal with the online qualities specific to cyberbullying, without explicit facets pertaining to face-to-face bullying (Medienhelden, ConRed);

– programs focused on both sides of the youth relational world - virtual and real interactions - and on the risky phenomena such bullying and cyberbullying that can arise from them (*Noncadiamointrappola!* program).

An example of a successful general anti-bullying program is the KiVa program (KiVassa Koulussa), which was developed in Finland (Ahtola, Haataja, Kärnä, Poskiparta, & Salmivalli, 2012; Kärnä, Voeten, Little, Poskiparta, Alanen, et al., 2011; Kärnä, Voeten, Little, Poskiparta, Kaljonen, et al., 2011; Salmivalli & Poskiparta, 2012; Williford et al., 2012a). KiVa focuses on promoting the empathy, self-efficacy, and antibullying attitudes of bystanders, who are neither bullies nor victims; such bystander characteristics have been found to be related to defending and supporting victimized peers (Caravita, Di Blasio, & Salmivalli, 2009; Pöyhönen, Juvonen, & Salmivalli, 2012; Salmivalli & Voeten, 2004). This program consists of two primary components: universal actions and indicated actions. Universal actions include classroom-based lessons, and some activities that address cyberbullying are also included. The indicated actions take place when bullying has come to the attention of school personnel. Each particular case is handled in a series of individual and group discussions between the school's KiVa team (a group of trained teachers in each school) and the students involved. Focusing on the effects of the program on cyberbullying and cybervictimization, Williford and colleagues (2013a) found out that KiVa has an incremental effect on cyberbullying and cybervictimization beyond that of traditional bullying, although effect size estimates suggested that these school-based antibullying interventions may need to incorporate additional components that specifically aim to reduce cyberbullying.

The Viennese Social Competence Program (ViSC) is another promising antibullying prevention program developed in the context of the national strategy for violence prevention in the Austrian public school system (Spiel & Strohmeier, 2011, 2012; Spiel et al., 2012). The goals of this program are to reduce aggressive behaviour and bullying in addition to fostering social and intercultural competencies in secondary schools. Cyberbullying and cybervictimization are not specifically targeted within the intervention, yet it was to have a buffering effect for the involvement in behaviour related to these two areas (Gradinger, Yanagida, & Strohmeier, in press). Students in the intervention group showed a lower increment in cyberbullying and cybervictimization than students in the control group, as measured through pre-, post- and follow-up tests.

Not many intervention/prevention programs have been created to deal specifically with cyberbullying (Slonje et al., 2013). Those that have tended to vary considerably on the model used, components, length, stimuli, design, and type of analyses used for the evaluation of efficacy.

One such program is Medienhelden[9], a cyberbullying prevention program developed in Germany (Wölfer et al., 2013). It is a universal, theory-based, manualized, and school-based program which targets middle school students and is implemented by trained and supervised teachers within the existing school curriculum. Based on the theory of planned behaviour (Ajzen 1991), the aim of this program is to reduce cyberbullying behaviours by addressing knowledge and competencies (e.g., definitions, legal rights, online security options, training of social skills), as well as attitudes toward the targeted behaviour, raising students' awareness concerning the consequences and legal risks of cyberbullying, and trying to change existing norms (social responsibility, overall class climate). Finally, the program aims to increase students' behavioural control, which includes the provision of online protective and helping strategies. A published study on the evaluation of the efficacy of the program found that acted cyberbullying behaviours within intervention classes were diminished relative to control group classes. To our knowledge, results on the effects on cybervictimization with this program are not yet published.

The ConRed is a Spanish program (del Rey-Alamillo et al., 2012; Ortega-Ruiz et al., 2012) based on the theory of normative social behaviour. It was designed and developed in order to prevent cyberbullying by means of raising the levels of technical, procedural, and communication expertise, and by improving social skills in virtual scenarios (internet and social networks). Intervention activities are carried out with the students, who attend eight training sessions conducted by external experts. An awareness-raising campaign that used materials like leaflets, posters, stickers, bookmarks, etc., accompanied the program in order to involve students, teachers, and families altogether. Using a quasi-experimental design (pre-post comparison between control and experimental group), the evaluation of the efficacy of the program demonstrated a drop in cyberbullying and cybervictimization while for bullying they found gender-differentiated benefits: among boys, bullying decreased in terms of both aggression and victimization, however, this was not the case when girls were involved as aggressors.

In addition to school-based programs, other projects were developed with the goal of using the virtual environment in a positive, supportive way. In the U.K., a charity, "Beatbullying",

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[9] English translation: Media Heroes

launched a new form of virtual peer support (CyberMentors). Students (cybermentors) are trained at school to help other minors online, in an on-demand, anonymous, and safe fashion via a website. Participants can turn to senior cybermentors and counsellors for further support if necessary. The evaluation of the program is mainly qualitative, focusing primarily on descriptive analyses for the cases that have occurred (where cyberbullying transpired, for how long, and so on). Some insights were given on the perceived usefulness of the training (by the cybermentors) and on the mentees satisfaction about both the website and the advices given by cyberrmentors (Thompson, Robinson, & Smith, 2013; Banerjee, Robinson, & Smalley, 2010).

Another program developed in Italy is *Noncadiamointrappola!*, which was progressively revised on the basis of the implementation and evaluation of the different editions. At the beginning (1st Edition) the program was focussed specifically on cyberbullying (second group of programs), and then on both cyberbullying and traditional bullying (the third group) (2nd and 3rd Editions).

*NONCADIAMOINTRAPPOLA!* PROGRAM: DEVELOPING AN EVIDENCE-BASED INTERVENTION ACROSS MULTIPLE ITERATIONS.

*Noncadiamointrappola!* program is a *school-based universal intervention* that was launched in 2008 with the aim of preventing and ceasing both traditional bullying and cyberbullying. Each year, it was modified by adding and altering components in accordance with results pertaining to the effectiveness of the previous edition, and most recent literature findings in order to improve the efficacy of our model (Flay et al., 2005; Menesini, Nocentini, & Palladino, 2012; Menesini & Nocentini, 2010; Palladino, Nocentini, & Menesini, 2012; Ttofi & Farrington, 2011).

The starting point of the program was a double/all round consideration of the virtual world. On the one hand, ICT use can increase the risks of cyberbullying. However, on the other hand these same technologies may also be used to enhance positive behaviours, and they may promote protective factors that provide an opportunity to counteract the same risks they sustain. These positive aspects of ICT became one of the core features of the program. In fact, in each edition the trained peer educators delivered online support activities.

The conceptual basis for the project is derived from a theoretical framework where the roles of the group and other participants are highly relevant to the activation and deactivation of online and offline mechanisms of bullying. It is based on *a peer-led peer-support model applied both in the real and online context*. In our model we have two main phases. The first

phase of the program is managed by adults (psychologists, experts). The second phase is lead by peer educators, a group of students that assume an assisting role after specific training. During the implementation of the different editions of the *Noncadiamointrappola!* program, the original peer-education/peer-support model (Menesini, Codecasa, Benelli, & Cowie, 2003) was modified in order to improve the efficacy of the program. Specifically, we maintained the "role" of peer educator as a trained student but we organized their activities in order to have a peer support model in the virtual context and a more cooperative approach in face-to-face contexts. This change was necessary for several reasons. In the first place, cooperative group work is one of the most effective components of the anti-bullying programs (Ttofi & Farrington, 2011). Secondly, a pure peer education approach, in which some trained student "teach to the others", was not really suitable. In fact, there was a shift towards a more focussed age target group – being the first year of high school, and peer educators work more in their own classroom.

The entire project started and was carried out through the student's collaboration: in the **pilot project,** two schools were involved in the design and development of a web-page forum. Specifically, peer educators activated some lines of discussion through a forum and uploaded materials produced in class on the topic. The web page name was "Noncadiamointrappola" which means "Let's not fall into the trap!". The students themselves decided the name of the project and the logo's design.

During the following year, other schools were involved and the project steps were further structured (Menesini, Calussi and Nocentini 2012); this constituted the **1st Edition** of the program. The focus was mainly on cyberbullying. The peer educators' activities were principally online; other students in the classroom attended only the first step in which adults and students discussed about cyberbullying using videos, activities etc (launch of the project and awareness developing). The evaluation of the effects of the intervention found a decrease in cyberbullying behaviours only for male peer educators and not for the rest of the class (Menesini, Nocentini, & Palladino, 2012).

In *Noncadiamointrappola!* program **2nd Edition**, we maintained the same general scheme and the same steps as previous editions but instead stressed the following aspects:

(a.) equal attention towards both phenomena – bullying and cyberbullying- in each step;

(b.) stronger attention to the victim's role in each step (e.g., "How can I respond and what can I do if I become a victim of cyberbullying?");

(c.) increased bystander involvement (e.g., "What can I do if I witness a cyberbullying situation?");

(d.) development of coping strategies that each participant roles (bystanders and victims) could have in bullying and cyberbullying;

(e.) greater collaboration of curriculum teachers on specific class activities defined according to school or class curricular programs.[10] Classroom activities were designed to create "products" to use in other editions or classes;

(f.) creation of a Facebook group that complemented the webpage forum (also to be used for communication with online peer educators).

We found a significant decrease in bullying, victimization and cybervictimization in the experimental group as compared to the control group (Menesini, Nocentini, & Palladino, 2012). In the experimental group, we also found a significant increase in adaptive coping strategies and a significant decrease in maladaptive coping strategies; these changes mediated the changes in the behavioural variables. In particular, the decrease in avoidance predicts the decrease in victimization and cybervictimization in the entire experimental group whereas the increase in problem solving predicts the decrease in cybervictimization in the peer educators group, but not for the other students in the experimental classes. We can speculate that the specific intensive training the peer educators attended - focussed on problem solving strategy- could have played a role.

## 1.2. Psychological processes for an anti-bullying and anti- cyberbullying intervention: indications from the research

In trying to improve the efficacy of the program, the research findings help us in designing activities and in focussing on processes that sustain the phenomena we want to address.

Every intervention against bullying and cyberbullying finally aims to reduce the short or long term impact of it on the youth physical, psychological, relational and general well-being (Bauman et al., 2013; Cooper et al., 2012; Farrington et al., 2011; Garaigordobil, 2011; Gini & Pozzoli, 2009; Hinduja & Patchin, 2010; Kim & Leventhal, 2008; Reijntjes et al., 2010; Ttofi et al., 2011a; van Dam et al., 2012). Different meta-analyses have found that victims are more likely to show internalizing problems (Reijntjes et al., 2010), psychotic symptoms later in life (van Dam et al., 2012), an increased risk for suicidal ideation and/or behaviours (Kim & Leventhal, 2008), and psychosomatic problems (Gini & Pozzoli, 2009, 2013). Furthermore,

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[10] e.g. students of senior high school specializing in didactics and education created a short movie on cyberbullying starting from specific in-depth lessons about emotions and from the writing of a screenplay; students of computer science created a set of rules for a safer use of e-mail and social network.

victimization is a major childhood risk factor that uniquely contributes to later depression (Ttofi, Farrington, Lösel, & Loeber, 2011b). Similarly, victims in the cyber context show higher levels of anxiety, depression, problematic internet use, suicidal ideation, stress, fear, low self-esteem, feelings of anger and frustration, helplessness, nervousness, irritability, somatisation, sleep disturbances, suicidal thoughts, and concentration difficulties that affect their academic performance and poor adjustment (Bauman et al., 2013; Cooper et al., 2012; Garaigordobil, 2011; Hinduja & Patchin, 2010). Looking at the effects of both types of victimization (traditional and cyber), Bonanno and Hymel (2013) found that the cybervictimization uniquely contributed to the prediction of both depressive symptomatology and suicidal ideation. Cybervictimization is an additional risk factor for depressive and internalizing symptoms over and beyond traditional victimization in adolescents (Machmutow et al., 2012; Menesini, Calussi, et al., 2012). Looking at those literature findings, **working on both aspects of the problem - traditional and cyber –** seems to be the best way to increase the chances to buffer against the negative effects on the victims of bullying and cyberbullying. It is well know that preventive interventions are more likely to be effective if they are based on empirically validated models of the causation of violence. There is therefore an important link between basic research on the causes of youth violence and the development of more effective interventions (Eisner & Malti, 2013). Bullying and cyberbullying are complex behaviours influenced by the interplay between individual and social-contextual factors. In planning and developing an anti-bullying/cyberbullying intervention, it is important in order to define a program that can lead into a change of these underlying processes, to consider both individual characteristics and contextual variables that serve to perpetuate these phenomena.

Bullying is often considered a social type of aggression because it involves a **group of peers** in which each member plays a specific role. Besides the traditional roles of  bully,  victim, and  bully-victim, other  participant  roles  have  been  identified: assistants, supporters, outsiders, and the victim defenders (Salmivalli, Lagerspetz, Bjorkqvist, Osterman, & Kaukiainen, 1996). This group dynamic shows that **bystanders** have the potentiality to influence the situation in different ways: they can reinforce the bully by joining in or passively accepting the situation or, conversely, they can distance themselves from the bullies or defend the victims. Research has also shown that bystanders can be trapped in a social conflict; they may claim to be against bullying while simultaneously attempting to defend themselves and to maintain their own status (Salmivalli, 2010). There are several mechanisms that can be relevant to understanding why bystanders may have difficulties in defending the victims. Primarily, the diffusion of responsibility occurs when an event happens in front of a

group of persons the bystanders feel less responsible (Salmivalli, 2010). Other contributing factors are that it is easier to be on the side of the bullies, the dominant group in the class, and that often the bystanders' behaviours are influenced by the attitudes of the majority of the class (Gini, Pozzoli, Borghi, & Franzoni, 2008). From a social point of view, bystanders are easier to influence than the bullies and victims because they often have antibullying attitudes despite their perceived difficulties in intervening in bullying situations. However, it has been found that the defending role is more likely to occur when other children perceive themselves as self-efficacious and competent in social and emotional communication (Pöyhönen et al., 2012). Holt and Espelage (2007) found that moderate levels of peer support can reduce the level of anxiety and depression in victims. Flaspohler, Elfstrom, Vanderzee, Sink, and Birchmeier (2009) found out that perceived peer social support more than teacher social support can moderate the relationship between victimization and quality of life. Literature on victim's support and on bystanders' role has underlined the value of involving the group and specifically uninvolved children, i.e. the so called "silent majority" to change the dynamics of bullying and to stop negative behaviours (Menesini et al., 2003; Salmivalli, 2010).

An **approach focused on peer involvement** appears to be relevant and suitable for use in anti-bullying and anti-cyberbullying programs (Cowie, & Wallace, 2000; Shiner, 1999). Peer education and peer support models are based on the assumption that peers learn and have significant influence on each other. The group's norms and behaviours are most likely to change when liked and trusted group members take the lead for individual and contextual changes (Shiner, 1999; Turner & Shepherd, 1999). Regarding the effectiveness of this approach, peer-led models have shown controversial results. In particular, in the cited above meta-analysis on effectiveness of school-based programs to reduce bullying, the authors concluded: "one program element (work with peers) was significantly associated with an increase in victimization" (Ttofi & Farrington, 2011, pp.45). What does "work with peers" mean? According to the authors, "work with peers is referred to the formal engagement of peers in tackling bullying. This could include peer mediation, peer mentoring, and encouraging bystanders intervention to prevent bullying" (Ttofi & Farrington, 2011, pp.45). To discuss this point, we can argue that this label could be inclusive of rather different approaches, components, and, ultimately, wholly different interventions. Shiner (1999), for example, stressed the fact that peer education may best be viewed as an umbrella term that covers a range of different approaches and that "the range of approaches that may simply be defined as peer education means that effective and ineffective approaches may be being conflated" (pp.555). In reviewing different examples of this approach, we note that this term

is commonly used to describe a range of interventions where the educators and the educated are seen to share something that creates an affinity between them but the term is used in a complex way (Shiner, 1999). The phrase "work with peers" tends to covers a wide range of peer support activities (Smith, Salmivalli, & Cowie, 2012). While the evidence is that these schemes can vary in effectiveness, many of these are perceived positively by pupils, who are aware of the contribution to their sense of safety at school (Cowie, Hutson, Oztug, & Myers, 2008; Cowie & Oztug, 2008). For example, in an effective intervention such as the KiVa program (see above) (Ahtola, Haataja, Kärnä, Poskiparta, & Salmivalli, 2012; Kärnä et al., 2011; Salmivalli, Karna, & Poskiparta, 2011; Christina Salmivalli & Poskiparta, 2012; Williford et al., 2012, 2013), a form of bystander defender training constitutes an important and effective component of the intervention. Peer-led methods provide training in a range of interpersonal and social skills and can educate students to take responsibility for their own actions. We agree with Smith, Salmivalli, & Cowie (2012, p. 439) in their conclusion: " a blanket judgment that work with peers should not be used" could lead to the abandon of many useful schemes, in particular those which are integrated into a whole school policy". Many studies have suggested that peer support systems and peer education can provide benefits to users of such schemes, to peer supporters, and to schools in general (Birnbaum, Crohn, Maticka-Tyndale, & Barnett, 2010; Cowie, Naylor, Talamelli, Chauhan, & Smith, 2002; Naylor & Cowie, 1999; Menesini, & Nocentini, 2012). Houlston, Smith, and Jessel (2011) investigated the potential benefits of peer support models in the UK, finding that victims who had used the peer support schemes reported a lower level of loneliness and a higher self-esteem compared to non-victim peers. From the results of previous edition of *Noncadiamointrappola!* program (Menesini, Nocentini, & Palladino, 2012), we know that within a peer-led model, the role that peer educators are assuming is particularly important. If this role leads only into a process of personal change that does not involve the other students, this approach can have limited effects (1st Edition; Menesini & Nocentini, 2010). However, if the peer educators are supported in their capacity to promote initiatives and active participation of other students, the process of change can involve the entire class (2nd Edition; Palladino et al., 2012). The components of a program are highly relevant. For example, in a meta-analysis, Ttofi and Farrington (2011) found that the use of videos and cooperative group work are important program elements that are associated with a decrease in victimization; we used these elements within the framework of a peer- led model (Palladino et al., 2012). Nevertheless, the conclusion they drew did not take into account the fact that there different components may play roles in the effectiveness of a peer-led program. Although these models

underlined the importance of students' active involvement, it is also important to incorporate adult involvement and supervision in order to create space and time for students' intervention (Ttofi & Farrington, 2011). A final consideration of the peer-led models should be devoted to the cost-benefit evaluation that usually is highly profitable for schools and community. From a theoretical point of view, more than one theory could suggest that a peer-led model is a good approach in bullying and cyberbullying intervention. Playing an explicitly defined role can be an important process to enhance and reinforce skills and abilities also in other contexts (Bronfenbrenner, 1992; Sarbin, 1976). The theory of planned action, which stresses the role of goals, scope, and behavioural control in promoting new actions and behaviours (Ajzen, 1991), and the theory of self-efficacy, which underlines how behaving in a positive way can help to improve one's self-efficacy and consequently one's ability to fulfil specific tasks and situations (Bandura, 1997), also theoretically support the peer education and peer scheme models in bringing about a change in behaviours.

Another important point to address in defining a program able to prevent bullying and cyberbullying is deciding on which individual processes are most relevant to intercept in order to activate mechanisms of change. What can we do to encourage a bystander's intervention in a bullying or cyberbullying situation? How can the victims and the bystanders cope in these situations?

We know that **empathy** and **attitudes** against bullying predict bystander intervention (Cappadocia, Pepler, Cummings, & Craig, 2012) and problem-solving coping strategies; perceived normative peer pressure for bystanders are positively associated with actively helping a victim (Pozzoli & Gini, 2010). Specifically, holding positive attitudes towards victims led students to feel greater personal responsibility for intervention, and both attitudes and responsibility are positively associated with students' choice to adopt "**approaching coping strategies**" that make defending behaviour more likely to occur (Pozzoli & Gini, 2013). Defending is also associated with the expectation that the victim feels better as a result, as well as valuing such an outcome (Pöyhönen et al., 2012). Distancing coping strategies are associated with passive bystanding, but we know that this approach can be changed; passive bystanders trained in the role of peer helpers can act as a resource for victimized peers (Cowie, 2000). Generally speaking, encouraging students to practice safer strategies to support and defend their victimized peers, allows them to self-protect against possible negative consequences of defending. Furthermore, as Rigby asserts (2000), even

small acts of support may possess high meaning for the victim. This might be true especially for the students who tend to remain passive while witnessing bullying.

In the cyber context, people with higher empathy and extroversion are more likely to intervene in cyberbullying situations. Although the number of studies on online bystanders are still few, it seems that the predictive personal characteristics remain consistent across different contexts, from face-to-face bystander research (Freis & Gurung, 2013) to the cyber context. At the same time, both affective empathy and cognitive empathy activation decrease negative bystander behaviours, such as perpetuating the distribution of material used as fodder for cyberbullying (e.g. embarrassing pictures) (Barlińska, Szuster, & Winiewski, 2013).

When contemplating the cyber context, a question arises: can victims and bystanders do something context-specific in order to protect themselves and their peers from cyberbullying attacks?  The online environment has created a greater number of specific coping strategies; people are much more likely to use indirect forms of intervention when dealing with a cyberbullying situation (Freis & Gurung, 2013). In their study, Freis and Gurung (2013) used an experimental design wherein, during a manipulated Facebook discussion, they analyzed bystanders' responses. A larger portion of participants' time was spent trying to intervene in the cyberbullying situation in contrast to the traditional bullying research that emphasized that only a few participants intervene in a face-to-face bullying situation (Salmivalli & Voeten, 2004; Salmivalli, 2010). This could be an effect of the tendency to express ourselves in Internet in a more open, unrestrained manner; consequently, and despite the effects of the diffusion of responsibility that can be present online, anonymity may encourage people to intervene. Freis and Gurung (2013) found that 90.6% of all participants tried to intervene in some way. Specifically, 3.2% used direct language, 50.0% changed the subject, 15.6% offered comfort to the victim, and 59.4% attacked the bully. However, 43.8% still left the online conversation at some point.

What about cybervictims? Can they react to a greater extent relative to traditional bullying? Students often report technical **coping strategies** such as blocking people online and changing one's password, username or mobile phone number (Slonje et al., 2013). They can also remove themselves from the website where cyberbullying occurs, stay offline, talk about their experience with a friend or inform an adult about what they have experienced (Hinduja & Patchin, 2008). Several types of coping strategies have been investigated in the context of cybervictimization experiences: supportive strategies (e.g. seeking social support from adults, teachers, friends or external institutions), reactions towards cyberbullies (e.g. retaliation, confrontation), technical strategies (e.g. report abuse buttons, blocking the sender), and

avoidance- and emotion-focused strategies (e.g. doing nothing, ignoring, helplessness) (Perren, Corcoran, & Cowie, 2012). Some students relay incidents of cyberbullying to friends or parents, but researchers have suggested that cybervictims were less likely to seek help compared to traditional victims (Dehue, Bolman, & Völlink, 2008; Dooley, Gradinger, Strohmeier, Cross, & Spiel, 2010). Although help-seeking was often recommended as the most effective coping strategy both to stop the incidents and to deal positively with negative effects (Machmutow et al., 2012; similar to traditional bullying situations, Tenenbaum, Varjas, Meyers, & Parris, 2011), we know that children often do not tend to spontaneously and independently engage in these coping tactics (Aricak et al., 2008; Dehue et al., 2008; Dooley et al., 2010; Juvonen & Gross, 2008; Kanetsuna et al., 2006; Kowalski et al., 2008; Machmutow et al., 2012; Slonje et al., 2013; Smith et al., 2008; Völlink et al., 2013). If cybervictims do decide to tell somebody, their first choice is usually to tell a friend, then a parent, and, lastly, a teacher (Slonje et al., 2013)[11]. Some different research strategies were suggested by Perren and colleagues (2012) on the topic on *effective coping strategies*. We evaluated the mediation processes involved in the efficacy of the 2nd Edition of *Noncadiamointrappola!* program (Palladino et al., 2012). We found that in the whole experimental sample the decrease in the avoidance coping strategy led to the decrease of victimization and cybervictimization. Conversely, in the group of students that had the role of peer educators, the increase in the use of problem solving strategy led to a decrease in cybervictimization.

In summary, the association between different coping styles and various victims/ bystanders behaviours and effects suggests that improving the use adaptive strategies could further increase the probability of bullying and cyberbullying reduction. At the same time, the moral component of active help, one's personal responsibility for intervention, empathy, should be explicitly addressed in order to improve the possibility of active bystanding behaviours. Again, it is important to keep in mind that bullying is a group phenomenon (Salmivalli, 2010); trying to change individual cognitions, coping strategies, and values without simultaneously addressing the whole group does not appear a promising approach. Intervention programs must create a context that enables students to support and defend their victimized peers. This type of intervention may dispel social norms that block bystanders from helping the victim.

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[11] See the fourth chapter of the present dissertation for a more in depth review about coping strategies and cyberbullying.

## 1.3. The *Noncadiamointrappola!* program: The 3<sup>rd</sup> (current) Edition

In *Noncadiamointrappola!* **program 3<sup>rd</sup> Edition** (scholastic years 2011/2012), we maintained the same peer-led model and some of its effective components (i.e., promoting adaptive coping strategies, online and offline activities) while better defining some aspects of the program, and we added some new components that appeared to be effective in interventions (Ttofi & Farrington, 2011).

Firstly, we decided to focus on a *specific age group* as a target of the intervention: *the first year of the High School*[12]. This decision was driven by several considerations about individual, relational, and academic variables. From middle school to high school in the Italian school system, there are important developmental transitions with changes of classmates, friends, teachers, subjects, and locations/venues. The first year of high school is a "sensitive period" wherein students are particularly susceptible to factors that lead to negative education outcomes. In the first year of high school, we see the highest rates of grade retention and dropouts, two highly related phenomena (Jimerson, Anderson, & Whipple, 2002; Palladino, Nocentini, Ciucci, & Menesini, 2011). A significant link between aggressive behaviour and academic performance has been found in previous research. Especially in adolescence, behaviour and quality of peer relations may be proximal factors that significantly affect school performance, possible grade retention, and premature absenteeism from school (French & Conrad, 2001; Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006). Physical aggression predicts school dropout and physical violence, and antisocial behaviour and achievement also predict subsequent dropout. Peer experiences at the group level (i.e., relation between peer rejection, low social preference scores) are connected directly with dropping out (Véronneau & Vitaro, 2007). Furthermore, early adolescent peer affiliations contribute to risk of school dropout (Farmer et al., 2003). In order to establish positive and non-aggressive relations amongst peers, to improve class climate, and to avoid school failure, an intervention focused on bullying and cyberbullying appears to be particularly relevant for the first year of high school.

Following the literature in the area (Pozzoli & Gini, 2013; Ttofi & Farrington, 2011), we tried to have a more *ecological approach* in the program, focusing on different levels of the system. These levels of focus ranged from the individual (peer educators and students) to the group (whole class), and filtered up to the school level. Specifically, the peer education and peer support components were maintained with the aims of activating individual and peer

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[12] In Italy, it corresponds to 9<sup>th</sup> grade, 14-15 years old students.

group mechanisms of change. At the same time, we worked on the involvement of school *teachers* by means of specific *training* on bullying and cyberbullying (first phase managed by psychologists and experts), and we stimulated new joint activities for teachers and students that focused on the revision of the school rules regarding bullying and cyberbullying (second phase managed by the trained students and teachers).

Compared to the previous editions, *the sample was expanded* to involve schools from different geographical areas.

One of the most important changes was the *standardization of the program*'s steps and components. In the 2$^{nd}$ Edition, the activities led by peers were defined in function of the specific school type they were attending. Also, these activities became curricular. In the 3$^{rd}$ Edition, all these sets of activities have been unified into one general set that could be implemented in all classes of all school types. We define common activities led by peer educators instead of defining specific activities for each type of school according to the curricular programs. Curricular programs often change and it's difficult to find always teachers of the core subject of study that are available to deliver the program. At the same time we need a standardized intervention in order easily spread it out in other contexts and to match the standard of evidence (Flay et al., 2005). The new activities led by peer educators in their own classes were based upon *cooperative work* with the other classmates and specifically focused on *empathy* and *problem solving*, thus targeting the *point of view of the victim and the bystander* in order to address the processes that can lead to a change in the role of these figures (Cappadocia, Pepler, Cummings, & Craig, 2012; Freis & Gurung, 2013; Pozzoli & Gini, 2013; Ttofi & Farrington, 2011).

## 2. AIMS

The aim of the present study is to analyze the efficacy of the *Noncadiamointrappola!* program 3$^{rd}$ Edition in terms of bullying and cyberbullying phenomena reduction, as well as internalizing symptoms that are related to such phenomena.

Specifically, our goals were to:

(a.) Preliminarily analyse possible differences between the experimental and control groups (first quasi-experimental trial). We tested the comparability of the two groups on the behaviours (bullying, victimization, cyberbullying and cybervictimization) and on other variables that are important correlates of the phenomena such as: attitudes

towards victims, empathy and moral disengagement in bullying situation. All of these variables are relevant for the implementation of different components of the intervention.

(b.) test the intervention effects on the outcome variables: victimization, bullying, cybervictimization and cyberbullying (first quasi-experimental trial).

(c.) test the indirect intervention effects on internalizing symptoms (first quasi-experimental trial) through the decrease in victimization and cybervictimization.

(d.) test the permanence of the effects on the variables targeted by the intervention 6 months after the end of the program (first quasi-experimental trial).

(e.) test the intervention effects in a second, independent, quasi-experimental trial with different students, classes, and schools involved also taking into account possible gender differences in the efficacy of the program.

## 3. MATERIALS AND METHODS

## 3. 1.    Participants

FIRST QUASI-EXPERIMENTAL TRIAL – SCHOOL YEAR 2011/2012

Participants were 622 adolescents, enrolled in $9^{th}$ grade of 8 high schools in Tuscany (provinces of Lucca and Florence). 29.3 % of the students attended lyceum high schools, 13.5% attended technical institutes, and 57.2% attended vocational high schools. The majority of students were Italian (85.88%); 6% came from East Europe (mainly Albania and Romania), and the other were from various other parts of the world. 76% of the sample passed the previous grade and were attempting for the first time the first year of high school while 24% failed were engaging in a repeated attempt towards the $9^{th}$ grade.

The experimental group was composed of 451 adolescents (57% male; mean age = 14.79; SD = 1.12) attending 22 classes of 5 high schools. 92 students (53.3% male) decided to assume a more involved role in the program, and they became peer educators.

The control group was composed of students who did not receive any kind of intervention (N = 171; 69% male; mean age = 15.28; SD= .1.15). Three schools accepted to participate as a control group, which was comprised of a total of 9 classes.

SECOND QUASI-EXPERIMENTAL TRIAL – SCHOOL YEAR 2012/2013

In the second quasi-experimental trial, 461 adolescents participated (52% male). They were all enrolled in 9th grade across 7 high schools in a province of Lucca. The majority of students were Italian (85.89%); 7.6% came from East Europe (mainly Albania) and the others were from various other parts of the world. 49.1% of the students attended lyceum high schools, 20% attended technical institutes and 30.9% attended vocational high schools.

The experimental group was composed by 234 adolescents (28.6% male; mean age = 15.60; SD = .92, Min = 14, Max = 18) attending 10 classes of 4 high schools. 39 students (20.5% male) decided to become peer educators.

The control group was composed by 227 students of 10 classes belonging to three schools (76.2% male; mean age = 15.57; SD = .88, Min = 14, Max = 18).

## 3. 2.    Procedure

Experimental schools were selected using a self-selection inclusion process, and the classes were selected by the school staff. There was a call made by the Province of Lucca and by the Ufficio Scolastico Regionale[13] to participate at the program in June 2011, which was sent to of all the high schools in Lucca e Florence (in the form of mailed letters to the schools' principals). No school accepted to participate with a random selection. Therefore, we were not able to have a randomized control trial (RCT) design. For this reason, we paired schools that asked to participate only as experimental schools with other control schools, specifically with classes with the same type of curriculum (e.g. we paired vocational school for mechanic; technical school for computer scientists, etc.). In September, we directly asked specific schools to participate as a control school.

No differences were found between experimental and control groups regarding the types of school attended (Lyceum, Technical, Vocational high schools) in our sample ($\chi^2_{(2, 622)}$ = 1.534; $p$ = .464),  suggesting that the pairing was appropriate.

The steps of the *Noncadiamointrappola!* 3rd Edition (first quasi-experimental trial) program were as follows (see also Figure 3):

   (I)      **Initial evaluation** (questionnaire administration in November 2011).
   (II)     **Teachers training**. Specific course on bullying and cyberbullying also focused on what a school can do against bullying and cyberbullying (2 meeting in each experimental school- 2 hours each one); free admission was granted to all teachers

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[13] the regional section of MIUR- Ministero dell'Istruzione, dell'Università e della Ricerca (Ministry of Education, University and Research)

of the experimental schools. The goals were to involve school teachers and communities, and to start a joint revision (with students) of the school rules and policies on bullying and cyberbullying.

(III) **Launch the project and awareness development**. Presentation of the project to the participating classes in order to try to raise awareness and communication on issues related to bullying and cyberbullying (2 hours, two classes combined). We used videos, etc., that were developed in the previous edition. The meeting was followed by another meeting with a psychologist member of "a special police unit" that was stated to specialize in online crimes (Polizia Postale). This meeting was focused on criminal implications of bullying and cyberbullying.

(IV) **Selection of peer educators** from each participating class through self-nomination.

(V) **Day training for peer-educators** (8 hours) with a focus on communication skills and social skills in real and virtual interactions; victim's and bystander's emotions, empathy, coping strategies, and problem-solving.

(VI) **Middle evaluation** after the first adults-led part of the project (questionnaire administration: end of February 2012); at this stage peer educators have not yet started the activities: they were only trained by the staff.

(VII) **Face-to-face peer educators activities** in their own class (2 meeting - 2 hours each one) on: 1) victims' and bystanders' feelings, emotions and empathy; 2) how to cope in bullying and cyberbullying situations from the victim and bystander point of view (what can I do if I see a bullying-cyberbullying episode or if I'm a victim or a cybervictim?). They used problem solving strategy in order to decide a variety of possible solutions and they chose which one was the best one in their opinion.

The activities were carried out in small groups by peer educators and each student had a specific role in order to cooperate for completing the activity. The groups created posters about each part of the activities and the photos of the poster were published on the *Noncadiamointrappola!* Facebook group. At the end of the activities the students presented their posters to other classmates and they discussed all together about the emotions and the solutions they found.

(VIII) **Online peer educators' activities**. We created a rotation schedule whereby all online peer educators worked for a period of two weeks as forum moderators and publishers (http://www.squarciagola.net/cyberbullismo/) and Facebook group (called noncadiamointrappola) administrators.

(IX)  **Final evaluation**. The same questionnaire was re-administered at the end of May-beginning of June 2012 to evaluate the final situation after the peer-led part of the program.

(X)  **Main conference**. Data restitution to the schools and students in the October 2012. Before the conference there was a Facebook contest: the class who had gained the higher amount of "likes" on the pictures of the poster created during class activities, won a tablet.

(XI)  **Follow-up evaluation** was run after 6 months: in December 2012 – January 2013.

As the follow-up measure, we collected data in the subsequent grade (i.e. the second year of Italian high school), and we checked on each student's second year enrolment status. In this way, we were able to identify students lacking negative school outcomes, such as grade retention, dropping out, changes in school or classroom, and so on. Using this approach, at the follow-up collection period, we were able to know the school career trajectory of 557 students. Unfortunately, in 5 classes of two schools, the school staff decided to mix the classes in the second grade. For this reason, we were not able to know anything about the school career neither administer questionnaires to those students.

The same edition was carried out in the school year 2012/2013 with a new independent, quasi-experimental trial. In this second quasi-experimental trial, we decided to have two main data collection only pre- (November 2012) and post-intervention (May-June 2013); this was the result of considerations given to the time and effort that were required for greater numbers of questionnaire administrations.

The questionnaires were administered in class by trained researchers during school time (Masters or Ph.D. graduate students). Informed consent procedures consisted of approval by the school, the class council, and the parents: 100% of the families agreed to their children's participation in the research.
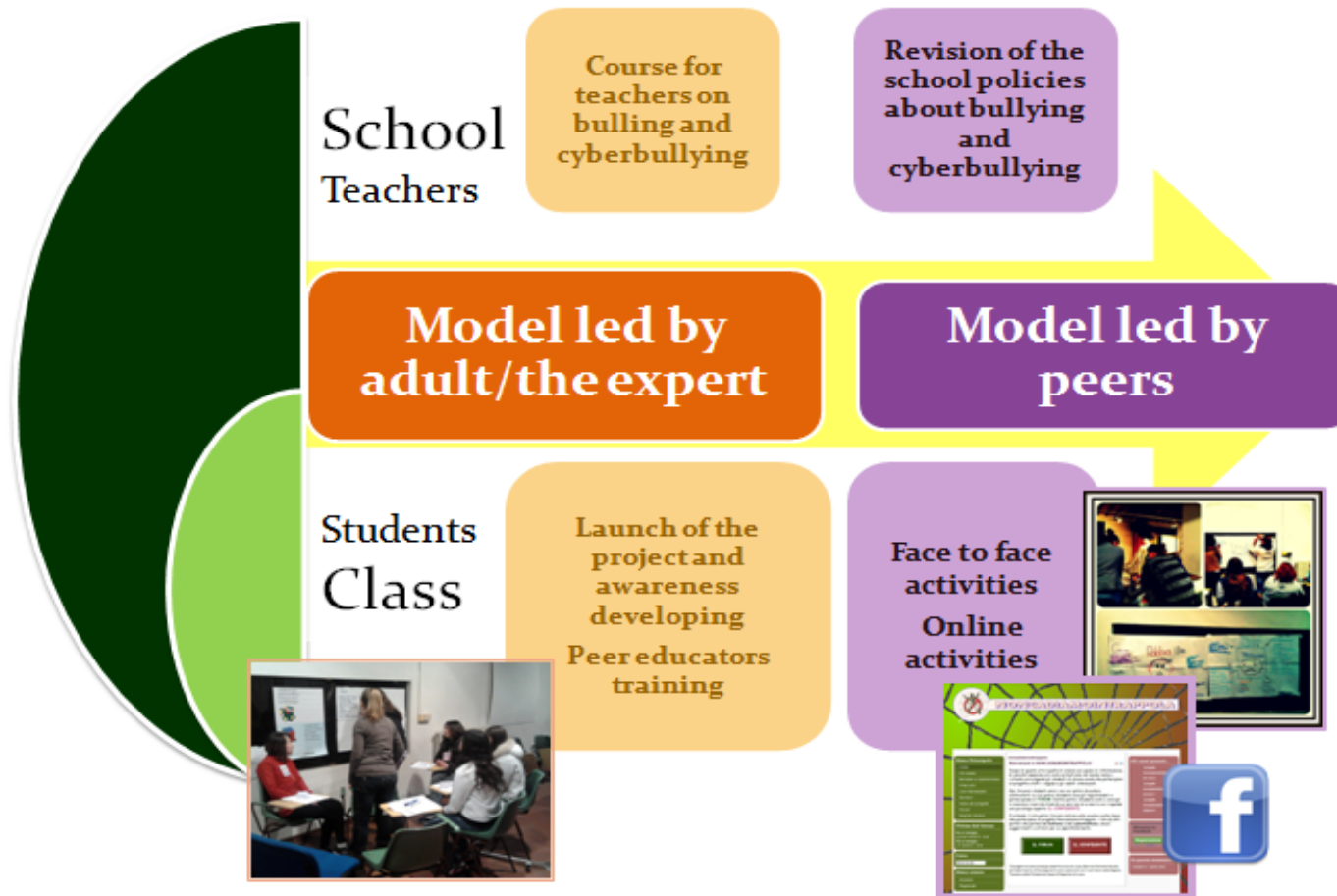
**Figure 3:** *Noncadiamointrappola!***: The model of the program.**

## 3. 3.     Measures

Outcome variables: BULLYING AND VICTIMIZATION

The Florence Bullying/Victimization Scales were used. Each scale consists of 10 items that ask how often respondents have experienced particular behaviours (as perpetrator and victim, separately) during the past couple of months. Specifically, each item covers a certain behaviour and this behaviour was defined both for perpetration and victimization (e.g. "I threatened someone" and "I beat and pushed" for bullying; "I was threatened" and "I was beaten and pushed" for victimization). Each item was evaluated on a 5-point scale from "never" to "several times a week." Both scales were composed of 3 subscales: physical (4 items), verbal (3 items) and indirect (3 items) bullying/victimization. First and second order CFA showed good fit indices for both scales (see Appendix 1 for the details of the analyses). Table 11 presents the alpha coefficients in the 4 sets of data collection for the first quasi-experimental trial - school year 2011/2012- and for the two sets data collection for the second quasi-experimental trial – school year 2012/2013-; in each  set, the scales showed a good internal consistency.

Outcome variables: CYBERBULLYING AND CYBERVICTIMIZATION

The Florence CyberBullying-cyberVictimization Scales (FCBVSs) were used (see Chapter 2 of this dissertation for details and psychometric properties of the scales). This measure consists of two scales, one for cyberbullying and one for cybervictimization. Each scale consists of 14 items that ask how often (in the past couple of months) respondents have experienced a variety of behaviours. Each item was evaluated by a 5-point scale from "never" to "several times a week". Both scales were composed of 4 subscales: Written-Verbal (4items), Visual (3items), Impersonation (4 items) and Exclusion (3items).

In Table 12, we report the alpha coefficients in the 4 waves of data collection for the first quasi-experimental trial - scholastic year 2011/2012- and for the two waves data collection for the second quasi-experimental trial – school year 2012/2013-; in each wave, the scales showed a good internal consistency.

| | VICTIMIZATION | | | | BULLYING | | | |
|---|---|---|---|---|---|---|---|---|
| | Pre-measure | Middle measure | Post-measure | Follow-up after six months | Pre-measure | Middle measure | Post-measure | Follow-up after six months |
| **FIRST QUASI-EXPERIMENTAL TRIAL** | .76 | .80 | .80 | .79 | .85 | .89 | .82 | .87 |
| **SECOND QUASI-EXPERIMENTAL TRIAL** | .67 | - | .82 | - | .68 | - | .81 | - |

**Table 11 Cronbach's alphas about victimization and bullying: 4 waves of data collection for the first quasi-experimental trial - scholastic year 2011/2012- and the two waves of data collection (pre- and post-measure) for the second quasi-experimental trial – scholastic year 2012/2013-.**

| | CYBERVICTIMIZATION | | | | CYBERBULLYING | | | |
|---|---|---|---|---|---|---|---|---|
| | Pre-measure | Middle measure | Post-measure | Follow-up after six months | Pre-measure | Middle measure | Post-measure | Follow-up after six months |
| **FIRST QUASI-EXPERIMENTAL TRIAL** | .83 | .91 | .92 | .83 | .87 | .93 | .90 | .84 |
| **SECOND QUASI-EXPERIMENTAL TRIAL** | .75 | - | .89 | - | .78 | - | .89 | - |

**Table 12: Cronbach's alphas about cybervictimization and cyberbullying: 4 waves of data collection for the first quasi-experimental trial - scholastic year 2011/2012- and the two waves of data collection (pre- and post_measure) for the second quasi-experimental trial – scholastic year 2012/2013-.**

EMPATHY

The Basic Empathy Scale (BES) is a tool designed to assess empathy in young people and adolescents on the basis of the dual-component conception (Albiero, Matricardi, Speltri, & Toso, 2009; Jolliffe & Farrington, 2006). The scale comprises a total of 20 items and the instrument is composed of two subscales that assess components of empathic responsiveness: the Affective Empathy subscale (11 items, $\alpha$= .82 in our sample), measuring emotional congruence with another person's emotions, and the Cognitive Empathy subscale (9 items, $\alpha$= .69 in our sample), measuring ability to understand another person's emotions. Each item asks participants to express their own degree of agreement on a 5-point, Likert-type scale, ranging from 1 (''strongly disagree'') to 5 (''strongly agree''). The two subscale scores were calculated for each participant by averaging their items scores.

ATTITUDE TOWARD VICTIMS

Pro-victim students' attitudes towards bullying were measured through an adapted version of Salmivalli and Voeten's (2004) scale composed of 9 items ((Pozzoli & Gini, 2010). The participants are asked to evaluate the extent to which they agreed with statements about bullying. Items were rated on a 5-point Likert-scale ranging from 0= completely disagree to 4= completely agree. Sample items include ''It's okay to call some kids nasty names'', "One should try to help the bullied victims", and "bullying may be fun sometimes" (reverse coded). A pro-victim attitude score was computed by averaging the students' answers on the items ($\alpha$= .83 in our sample). The higher a student scored on the scale, the more his/her attitudes reflected favourable views of the victim.

MORAL DISENGAGEMENT FOR BULLYING SITUATIONS

The Moral Disengagement for Bullying situations Questionnaire (MDBQ) measures the specific moral disengagement self-regulatory processes activated within a bullying episode. Firstly, a definition of "bullying" is presented. The participants are asked to think about bullying while answering 27 items tapping the eight moral disengagement mechanisms (Bandura, 1991). Specifically, analyses on validity of the construct (Nocentini, Caravita, Palladino, Gini, & Menesini, 2013) showed good indices of fit for the third order (moral disengagement) and second order factor (four processes that cover the eight mechanisms). Items were rated on a five- point Likert-scale ranging from 1= completely false to 5 = completely true ($\alpha$= .89 in our sample).

INTERNALIZING SYMPTOMS

The Youth Self-Report (Achenbach, 1991b) is a self-report questionnaire for subjects aged 11-18 years, and was modelled on the CBCL, a parent questionnaire for the assessment of psychopathology in children and adolescents (Achenbach, 1991a). The 103 problem items were evaluated on a three points scale ranging from 0 (not true) to 2 (very true or often true). The YSR can be scored on various syndrome scales: withdrawn, somatic complaints, anxious/depressed, together constitute the Internalising Scale (31 items); delinquent behaviour and aggressive behaviour together constitute the Externalising Scale. For the purposes of the present study, we analyzed data about Internalizing Symptoms scale. The scale showed good reliability in all the waves of data collection (Pre-intervention: $\alpha$ = .90; Middle evaluation: $\alpha$ = .92; Post intervention: $\alpha$ = .91).

## 3. 4.    Overview of the Analyses

All the analyses were conducted via Mplus 7.0 (Muthén & Muthén, 1998-2007) and PASW 18 (SPSS, 2009).

All models were evaluated by means of the following overall indices: the chi-square ($\chi^2$) statistic, the root-mean-squared error of approximation (RMSEA), and the comparative fit index (CFI). Recommended cut-off points for these measures are 0.08 (Brown, Cudek, 1993) or 0.06 (Hu, Bentler, 1998) for RMSEA and 0.90 or 0.95 for CFI (Bollen, 1989).

PRELIMINARY ANALYSES

Given the non-normal distribution of data, we applied a logarithmic transformation to all the behavioural variables (bullying, cyberbullying, victimization, cybervictimization) and used the transformed variables in all subsequent analyses.

In order to test the comparability of the two groups (experimental versus control group) we analyzed the differences between them at the pre-test evaluations. Specifically, we performed a set of One-way ANOVAs on the focus variables of the program (bullying, victimization, cyberbullying, cybervictimization) in both quasi-experimental trials. For the first trial, a set of ANOVAs on other strictly related variables (attitude toward victims, moral disengagement in bullying situation and empathy) were also carried out.

EFFECTS OF THE PROGRAM ON BULLYING AND CYBERBULLYING PHENOMENA: THE FIRST QUASI-EXPERIMENTAL TRIAL

The estimation and the prediction of longitudinal development of bullying, victimization, cyberbullying and cybervictimization were analyzed through a growth latent curve model (Meredith & Tisak, 1990; Duncan & Duncan, 1994; Muthen & Curran, 1997; McArdle, 1988). Within this framework, the repeated observed variables can be used to estimate the unobserved underlying trajectory defined by two latent growth factors, the intercept (I) and the slope (S). These factors can be treated as fixed and random variables. Fixed intercept and fixed slope represents the average means of each latent factor. Random effects are represented by four parameters: a variance for each latent factor reflecting the variability across individuals around the average of the intercept and of the slope, a covariance between the two latent factors, and a residual variance for each repeated measure (Curran & Hussong, 2003).

Fixed and random components of growth in victimization, bullying, cybervictimization, and cyberbullying were estimated through unconditional separate models for repeated measures (pre-intervention, middle-evaluation and post-intervention). Given that all of the variables presented a non-normal distribution of data (absolute values of skewness and Kurtosis both greater than 1), the MLR estimator was used (maximum likelihood parameter estimates with standard errors and a chi-square test statistic that are robust to non-normality). The three repeated measures of the four target variables were defined as multiple indicators of the two latent growth factors: the intercept, representing the initial starting point of the trajectory, and the linear slope, representing the shape of the curve. The factor loading for the three measures on the latent intercepts factor were fixed to 1.0 to represent the initial starting point of the trajectories. To define the linear metric of time, the factor loadings for the slope were set to 0, 1 and 2. Covariance between these two growth factors and the residual variances of the three repeated measures were estimated. The latent growth factors were regressed on the variable *program* (0=control group; 1= experimental group) in order to test if the program can affect the change over time of the target variables: victimization, bullying, cybervictimization and cyberbullying (MacKinnon, 2008). In order to interpret the differences between control and experimental group in a meaningful way, multiple-group analysis (experimental versus control group) were conducted.

INDIRECT EFFECTS OF THE PROGRAM ON INTERNALIZING SYMPTOMS: THE FIRST QUASI-EXPERIMENTAL TRIAL

As we did for the target intervention variables, the estimation and the prediction of longitudinal development of internalizing symptoms were analyzed through latent growth curve modeling. The latent growth factors (slope and intercept) were regressed on the variable *program* (0=control group; 1= experimental group) in order to test if the program can affect the change over time of internalizing symptoms. In order to interpret the differences between control and experimental group in a meaningful way, multiple-group analysis (experimental versus control group) were conducted.

Subsequently, we carried out a final mediation process model to test if the change in internalizing symptoms (outcome) is a consequence of the change in both victimization and cybervictimization variables (mediators) derived by program (independent variable) (MacKinnon, 2008). We tested for the indirect effect and if the direct effect (slope internalizing symptoms on program) still remained significant adding the mediators to the model. Specifically, we tested for two paths of indirect effects: 1) the program predicts a change in victimization that in turns predicts a change on internalizing symptoms; 2) the program predicts a change in cybervictimization that in turns predicts a change on internalizing symptoms.

The paths between the program variable and the three intercepts were tested to be sure of the initial comparability of the two groups also in the final model. The covariances between each slope and intercept are model paths, as well the covariances between all intercepts and slopes of cybervictimization and victimization.


LONG TERM EFFECTS OF THE PROGRAM: FIRST QUASI-EXPERIMENTAL TRIAL FOLLOW-UP AT SIX MONTHS

In order to test the differences between the control and the experimental groups at the follow-up data collection, we performed a set of analysis of covariance (ANCOVAs). For all behavioural variables (bullying, victimization, cyberbullying and cybervictimization) measured six months after the end of the program, we tested differences between the two groups controlling for the pre-intervention measure of the variable.

EFFECTS OF THE PROGRAM ON BULLYING AND CYBERBULLYING PHENOMENA: THE SECOND INDEPENDENT QUASI-EXPERIMENTAL TRIAL

To evaluate the impact of the program, we used mixed factorial ANOVAs (repeated-measures). We analyzed the longitudinal differences (pre and post-intervention) in bullying, victimization, cyberbullying and cybervictimization (within-subject factor) between the control and experimental group (between-subject factor), also testing for gender effects (between-subjects factor). Effect size was evaluated using partial eta squared ($\eta^2_p$).

## 4. RESULTS

Appendix 2 reports descriptive statistics and correlations among the measures (Table 23, 24 and 25). First quasi-experimental trial: we reported for the three waves of data collection (Pre; Middle; Post) means and standard deviations of the variables target of the program (bullying, victimization, cyberbullying and cybervictimization) and internalizing symptoms and correlations among them.

PRELIMINARY ANALYSES

For the *first quasi-experimental trial*, at the pre-test measure no difference were found in victimization ($F_{(1,\ 517)}$ = 1.934; n.s.), bullying ($F_{(1,516)\ =}$ .929; n.s.), cybervictimization ($F_{(1,\ 505)}$ = .161; n.s.), and cyberbullying ($F_{(1,\ 502)\ =}$0.64; n.s.) between experimental and control groups. In Table 13 are reported descriptive statistics for empathy, attitudes toward victims and moral disengagement in bullying situation and the results of the ANOVAs. No significant differences between control and experimental group we found in those variables.

For the *second quasi-experimental trial*, no difference between experimental and control groups were found at the pre-test measure for females (victimization $F_{(1,\ 285)}$ = .143; n.s.; bullying $F_{(1,285)}$ = 3.013; n.s.; cybervictimization $F_{(1,\ 285)}$ = .862; n.s.; cyberbullying $F_{(1,\ 285)}$ = 3.039; n.s.), nor for males (victimization $F_{(1,\ 251)}$ = .231; n.s.; bullying $F_{(1,251)}$ = .320; n.s.; cybervictimization $F_{(1,\ 251)}$ = .072; n.s.; cyberbullying $F_{(1,\ 251)}$ = .894; n.s.).

| | | MEAN | SD | Differences between the two groups |
|---|---|---|---|---|
| **Empathy** | **Cognitive** | | | |
| | Experimental Group | 3.76 | .51 | $F_{(1, 528)} = .089$; n.s. |
| | Control Group | 3.75 | .56 | |
| | **Affective** | | | |
| | Experimental Group | 3.29 | .71 | $F_{(1, 528)} = .065$; n.s |
| | Control Group | 3.31 | .64 | |
| **Attitude Toward Victims** | Experimental Group | 3.39 | .51 | $F_{(1, 523)} = 2.463$; n.s. |
| | Control Group | 3.31 | .54 | |
| **Moral Disengagement in Bullying situations** | Experimental Group | 2.43 | .66 | $F_{(1, 531)} = .669$; n.s. |
| | Control Group | 2.38 | .61 | |

**Table 13 Descriptive statistics (Mean and SD) and ANOVAs results for the two groups (experimental versus control) in empathy, attitudes toward victims and moral disengagement in bullying situations.**

## 4. 1.   Effects of the program on bullying and cyberbullying: the first quasi-experimental trial

Table 14 presents the fit indices of the models for victimization, bullying, cybervictimization, and cyberbullying. In Figure 4 and 5, models and effects of the program on the growth curves are showed for the face-to-face context (victimization and bullying) and for the cyber context (cybervictimization and cyberbullying).

All the models fit the data well. The program significantly predicts the slope of victimization and perpetration in both contexts (victimization: $\beta = -.193$, SE = .06, $p \leq .01$; bullying: $\beta = -.132$, SE = .05, $p \leq .01$; cybervictimization: $\beta = -.211$, SE = .06, $p \leq .001$; cyberbullying: $\beta = -.254$, SE = .10, $p \leq .01$). At the same time, it is not a significant predictor of the intercepts (victimization: $\beta = .043$, SE = .05, p= n.s.; bullying: $\beta = .50$, SE = .04, p= n.s.; cybervictimization: $\beta = .035$, SE = .05, p= n.s.; cyberbullying: $\beta = .029$, SE = .05, p= n.s.)

confirming that the control and the experimental groups exhibited no pre-existing differences (pre measure – intercept) in all variables. The covariance between intercept and slope is always significant and negative.

Looking at the multiple group latent growth curves, all means of the slopes are not significant in the control group while there is a significant decrease over time (significant negative mean of the slope) in victimization, bullying, cybervictimization and cyberbullying in the experimental group (see Appendix 3 - Table 27 for the multiple-group estimated components of growth curves and models fit for victimization, bullying, cybervictimization and cyberbullying).

| | $\chi^2$ | df | P | CFI | RMSEA (90 perc. C.I.) probabability <= .05 |
|---|---|---|---|---|---|
| **VICTIMIZATION** | 6.472 | 2 | .04 | .973 | .061 (.012-.117) .29 |
| **BULLYING** | 8.545 | 4 | .07 | .975 | .044 (0-.084) .54 |
| **CYBERVICTIMIZATION** | 3.471 | 3 | .33 | .993 | .016 (0-.070) .78 |
| **CYBERBULLYING** | 2.307 | 2 | .32 | .994 | .016 (0-.085) .70 |

**Table 14: Effects of the program on the target variables growth curves: fit for victimization, bullying, cybervictimization and cyberbullying models.**

**FACE TO FACE CONTEXT**
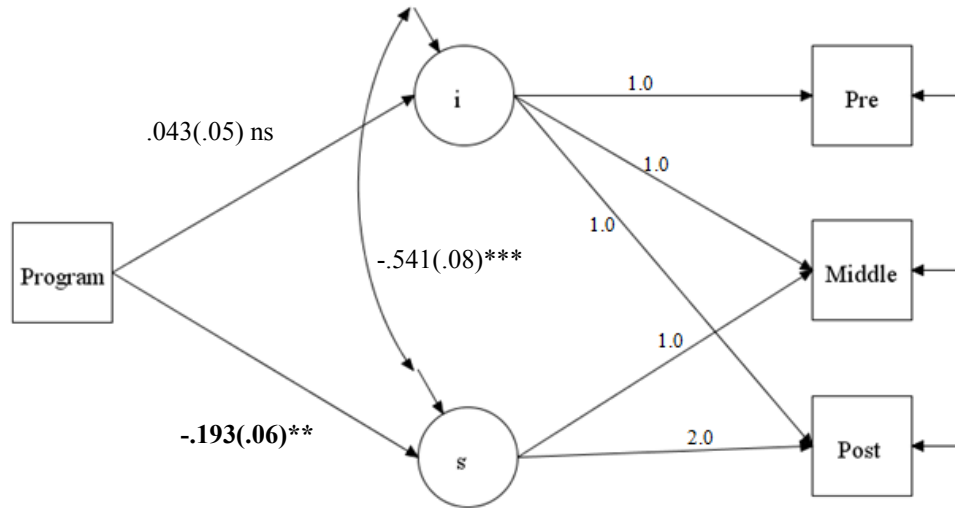
**BULLYING**

**VICTIMIZATION**

**Figure 4 Effects of the program on victimization and bullying growth curves.**

Note: The path coefficients and standard errors (in brackets) are standardized estimates. (** for p≤.01; *** for p≤.001)

**CYBER CONTEXT**
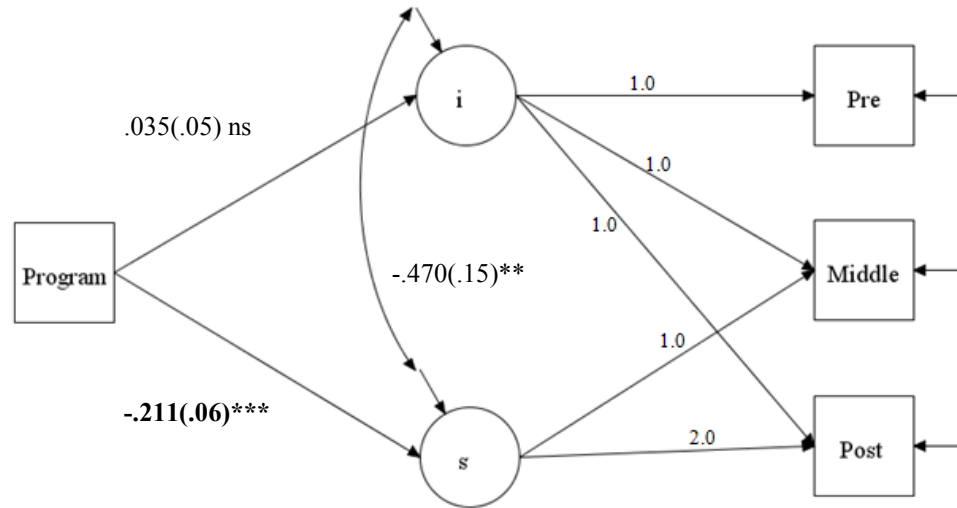
**CYBERBULLYING**
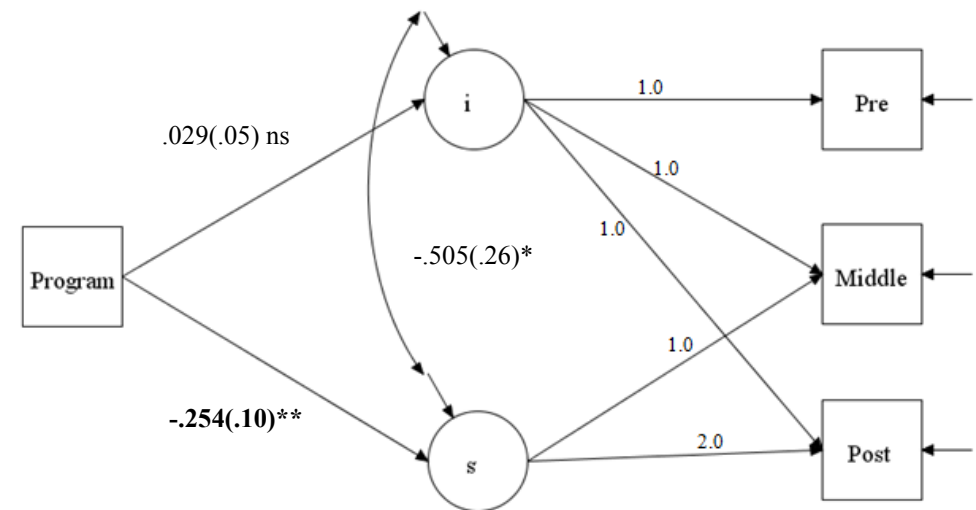
**CYBER VICTIMIZATION**

**Figure 5 Effects of the program on cybervictimization and cyberbullying growth curves.**
*Note*: The path coefficients and standard errors (in brackets) are standardized esteems (** for p≤.01; *** for p≤.001).

## 4. 2. Indirect effects of the program on internalizing symptoms: the first quasi-experimental trial

Figure 6 presents the fit indices of the model and the effects of the program on the growth curve for internalizing symptoms. The model fit the data well. The program predicts significantly the slope of internalizing symptoms ($\beta$ = -.132, SE = .05, p≤.001) while it is not a significant predictor of the intercept ($\beta$ = .010, SE = .06, p= n.s.) confirming that the control and the experimental groups did not significantly differ at the initial level (pre measure – intercept) also in this variable. The covariance between intercept and slope is significant and negative ($\beta$ = -.594, SE = .06, p≤.001).

**INTERNALIZING SYMPTOMS**
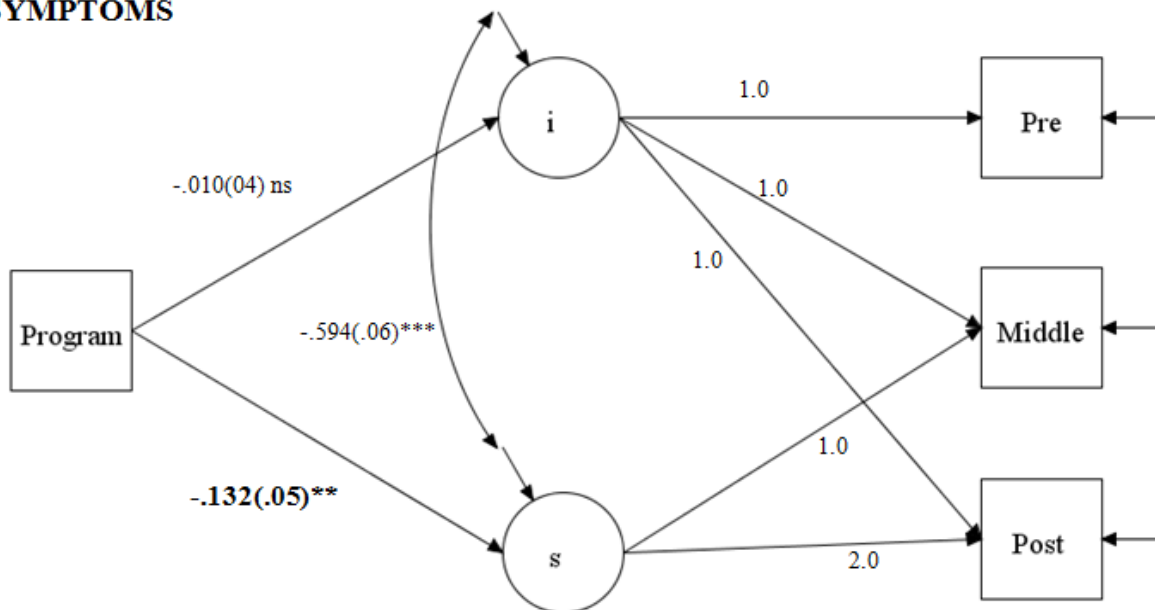


**MODEL FIT: $\chi^2$= .773; df = 3; p = .00; CFI = 1.000; RMSEA = .00.**

**Figure 6 Effects of the program on Internalizing Symptoms growth curves.**
Note: The path coefficients and standard errors (in brackets) are standardized esteems. (* for p≤.05; ** for p≤.01; *** for p≤.001)

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Looking at the multiple group latent growth curves, while in the control group the mean of the slope is not significant, in the experimental group there is a significant decrease over time (se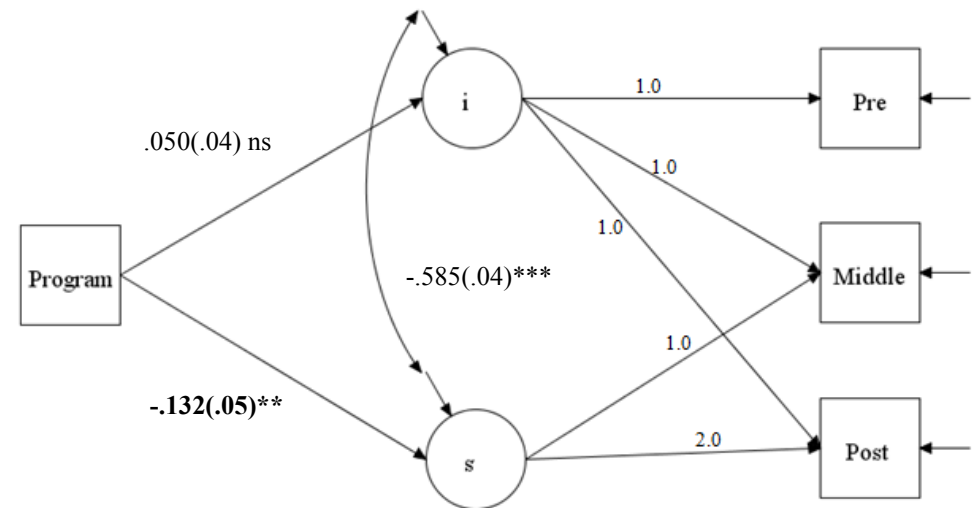e Appendix 3 -Table 27- for the multiple-group estimated components of growth curve and model fit for internalizing symptoms).

In Figure 7, we report fit indices of the final mediation process model and the estimates of all the paths between the latent variables (slopes and intercepts) and between them and the independent variable (Program). All of the covariances between each slope and intercept are significant and negative. The initial levels of the three latent growth curves exhibit significant positive relationships: internalizing symptoms intercept strongly covaries both with cybervictimization intercept ($\beta$ = .429, SE = .051, p$\leq$.001) and victimization intercept ($\beta$ = .289, SE = .037, p$\leq$.001). Significant covariations between victimization and cybervictimization both for intercepts ($\beta$ = .344, SE = .056, p$\leq$.001) and slopes ($\beta$ = .153, SE = .047, p$\leq$.01) were found. No effects of the program were found on the three intercepts, confirming the comparability of the experimental and control groups at the pre-measure.

The program significantly predicts both slopes of victimization ($\beta$ = -.176, SE = .052, p$\leq$.01) and cybervictimization ($\beta$ = -.218, SE = .059, p$\leq$.001) confirming also the efficacy of this program in reducing them in a model in which they are tested simultaneously. On the contrary, introducing the latent growth curves of those variables in the model, the direct effect to internalizing symptoms is no longer significant ($\beta$ = -.009, SE = .10, p= n.s.).

The slope of cybervictimization is a significant predictor of the slope of internalizing symptoms ($\beta$ = .195, SE = .065, p$\leq$.01) while for the victimization slope we found a marginally significant effect ($\beta$ = .094, SE = .056, p<.10).

We tested for the indirect effect (program variable on internalizing symptoms slope through cybervictimization and victimization slopes). Overall the total indirect effect is significant ($\beta$ = -.59, SE = .020, p$\leq$.01). Looking at the two paths of indirect effects only the decrease in cybervictimization, predicts by the program, led into a decrease in internalizing symptoms ($\beta$ = -.043, SE = .018, p$\leq$.01). For victimization the indirect effect is no longer significant ($\beta$ = -.016, SE = .011, p = .13)[14].

Summarizing, the decrease in cybervictimization is the significant mediator of the efficacy of the program in reducing internalizing symptoms.

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[14] For the readability and following the purposes of the present dissertation, the results of the two separate mediation process models (cybervictimization or victimization as a mediator of the efficacy of the program in reducing internalizing symptoms) were omitted. The indirect paths from the program to the slope of internalizing symptoms were significant both for cybervictimization ($\beta$=-.035, SE = .016, p$\leq$.05) and victimization ($\beta$=-.024, SE = .012, p$\leq$.05) separate models and all the fit indexes of the models were acceptable.
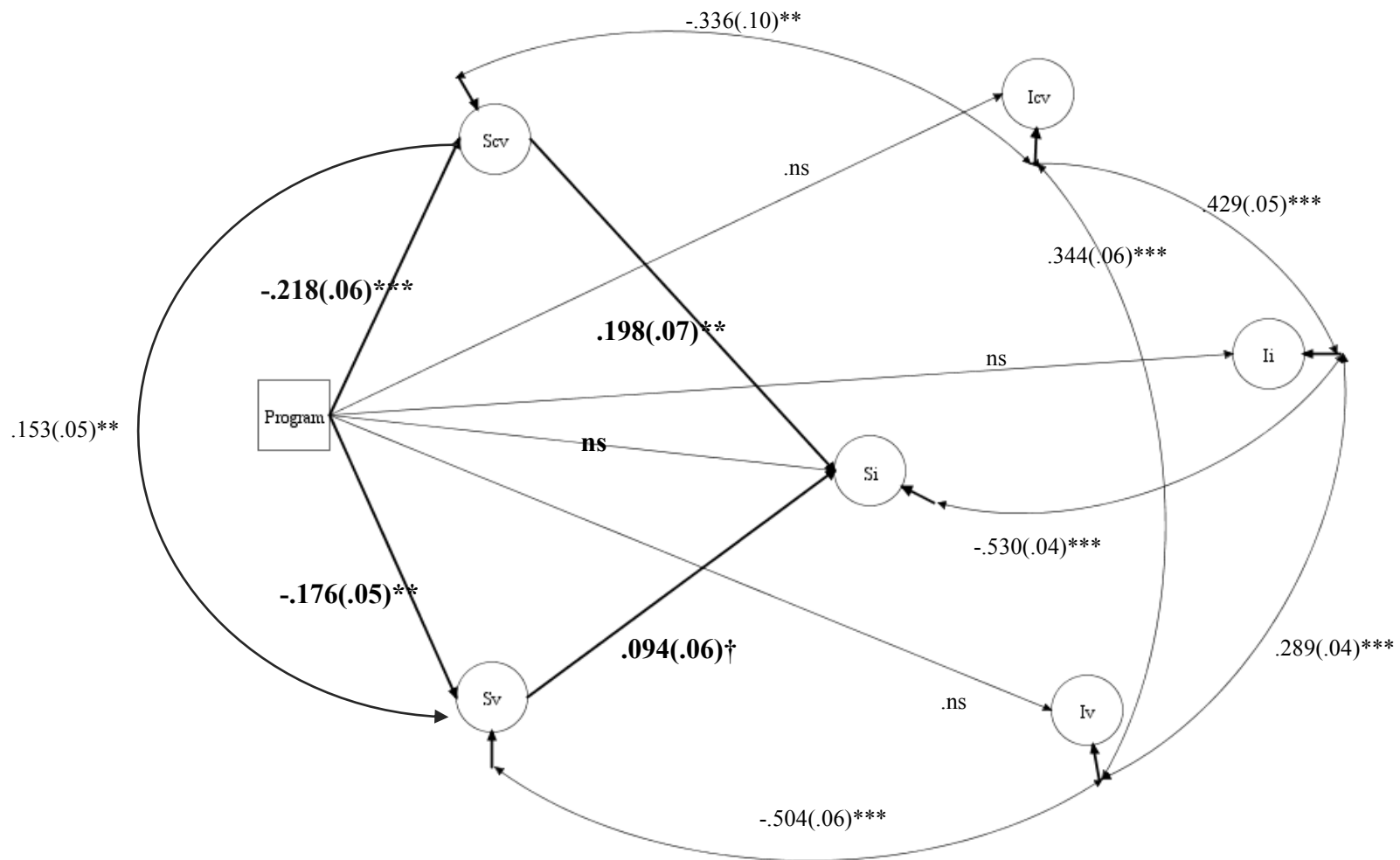
**MODEL FIT: $\chi^2$= 132.894; df = 29; p = .00; CFI = .918; RMSEA = .064. $R^2$Si=7%.**
**TOTAL INDIRECT EFFECT (Program → Si): -.059(.020)\*\*; Specific indirect effects: VIA Scv = -.043(.018)\*; VIA Sv = .016(.01) n.s.**

**Figure 7 Mediational Model: direct and indirect effects of the Program on internalizing symptoms.** For the readability of the figure only the paths between latent variables and the independent variable are shown (†for p<.10; \* for p≤.05; \*\* for p≤.01; \*\*\* for p≤.001).

## 4. 3.  Long term effects of the program: first quasi-experimental trial follow-up at six months

As shown in Figure 8, we found a regular scholastic career for 423 students. In the control group 60 students (35.1%) were not enrolled in the consecutive class while in the experimental group 74 students (19.2%) were not. Specifically, there was a significant difference between the two groups ($\chi^2_{(1, 557)}$ = 16.432; p≤.001): in the experimental group we found a higher percentages of regular school career.
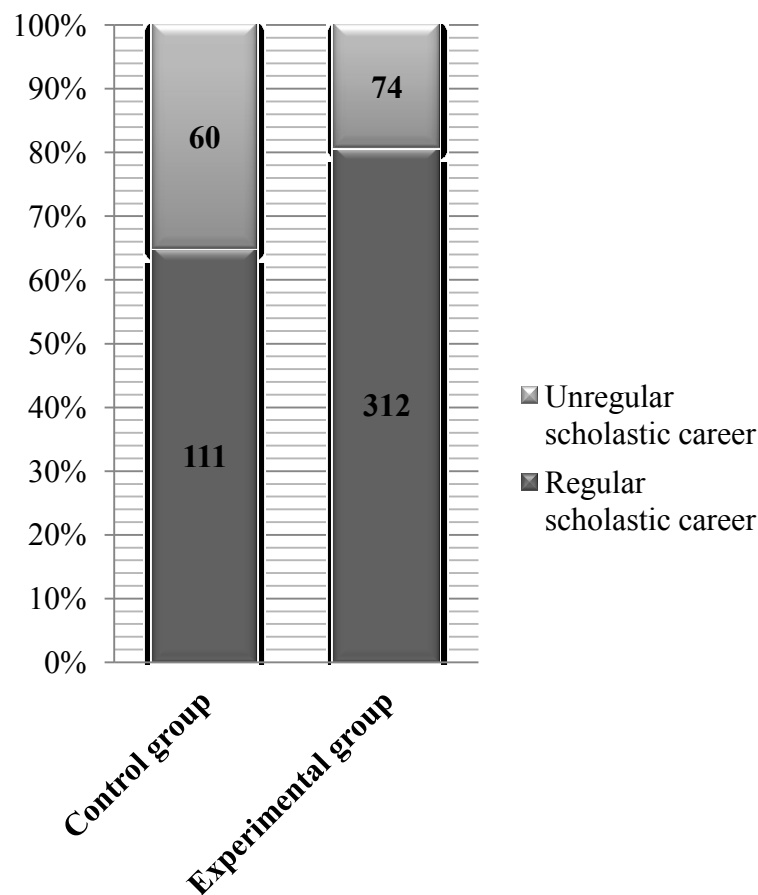


**Figure 8 Students of the control and experimental group with regular and unregular scholastic career (frequencies and percentages).**

Analysis of covariance ANCOVAs were conducted for this study. The dependent variables were bullying, victimization, cyberbullying, cybervictimization measured at the follow-up data collection (Figure 9) and the independent variable (control versus experimental group)

was statistically significant for each of the four ANCOVAs, always controlling for the pre-intervention level of the variable (Table 15, Table 16, Table 17 and Table 18). Specifically, at the follow-up, the experimental group show lower levels of bullying, victimization, cybervictimization, and cyberbullying as compared to the control group. All covariates were significant related to the follow-up measure.

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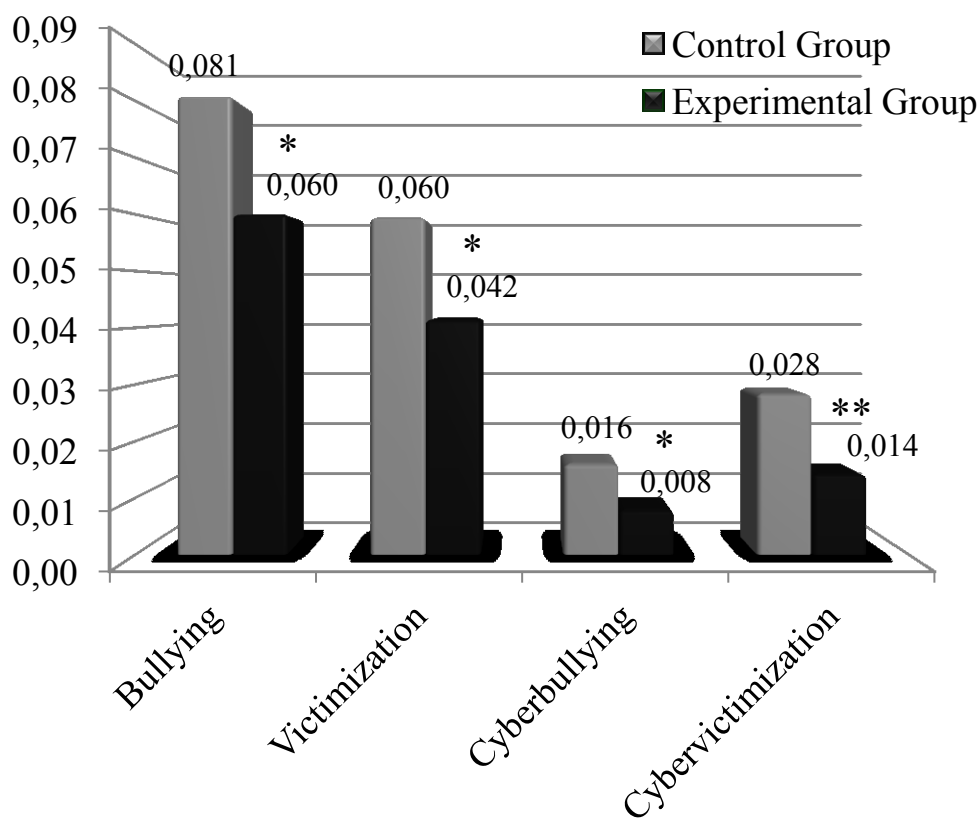


**Figure 9 Means of the target variables in control and experimental group six months after the end of the program**

| Source | SS | df | MS | F | p | $\eta^2_p$ |
|---|---|---|---|---|---|---|
| Pre-intervention Victimization | ,048 | 1 | ,048 | 13,111 | ,000 | ,043 |
| Control VS Experimental Group | ,021 | 1 | ,021 | 5,635 | ,018 | ,019 |
| Error | 1,082 | 295 | ,004 | | | |
| Total | 1,781 | 298 | | | | |

**Table 15 Analysis of Co-Variance for follow-up measure of victimization by group (Control vs Experimental)**

| Source | SS | df | MS | F | p | $\eta^2_p$ |
|---|---|---|---|---|---|---|
| Pre-intervention Bullying | ,435 | 1 | ,435 | 77,384 | ,000 | ,210 |
| Control VS Experimental Group | ,031 | 1 | ,031 | 5,452 | ,020 | ,018 |
| Error | 1,635 | 291 | ,006 | | | |
| Total | 3,358 | 294 | | | | |

**Table 16 Analysis of Co-Variance for follow-up measure of bullying by group (Control vs Experimental)**

| Source | SS | df | MS | F | p | $\eta^2_p$ |
|---|---|---|---|---|---|---|
| Pre-intervention Cybervictimization | ,050 | 1 | ,050 | 36,281 | ,000 | ,111 |
| Control VS Experimental Group | ,010 | 1 | ,010 | 7,309 | ,007 | ,025 |
| Error | ,401 | 291 | ,001 | | | |
| Total | ,555 | 294 | | | | |

**Table 17 Analysis of Co-Variance for follow-up measure of cybervictimization by group (Control vs Experimental)**

| Source | SS | df | MS | F | p | $\eta^2_p$ |
|---|---|---|---|---|---|---|
| Pre-intervention Cyberbullying | ,067 | 1 | ,067 | 76,343 | ,000 | ,207 |
| Control VS Experimental Group | ,004 | 1 | ,004 | 4,577 | ,033 | ,015 |
| Error | ,256 | 292 | ,001 | | | |
| Total | ,355 | 295 | | | | |

**Table 18 Analysis of Co-Variance for follow-up measure of cyberbullying by group (Control vs Experimental)**

## 4. 4. Effects of the program on bullying and cyberbullying: the second quasi-experimental trial

Figure 10 and Figure 11 show the means pre- and post- intervention for bullying and cyberbullying variables for both groups -experimental and control group- considering gender. FACE TO FACE CONTEXT VARIABLES - For victimization and bullying results showed significant main effects of time (victimization $F_{(1, 457)} = 12.090$; p≤.01; $\eta^2_p = .026$; bullying $F_{(1, 457)} = 8.003$; p≤.01; $\eta^2_p = .017$) and group (victimization $F_{(1, 457)} = 5.379$; p≤.05; $\eta^2_p = .012$; bullying $F_{(1, 457)} = 9.807$; p≤.01; $\eta^2_p = .021$) and significant interaction time*group (victimization $F_{(1, 457)} = 11.565$; p≤.01; $\eta^2_p = .025$; bullying $F_{(1, 457)} = 12.148$; p≤.01; $\eta^2_p = .026$). No significant interaction time*gender (victimization $F_{(1, 457)} = 4.452$; n.s; bullying $F_{(1, 457)} = 1.680$; n.s.) and group*gender (victimization $F_{(1, 457)} = .238$; n.s.; bullying $F_{(1, 457)} = 1.063$; n.s.) were found for both variables. Only for bullying we found a significant main effect of gender (victimization $F_{(1, 457)} = 0.003$; n.s; bullying $F_{(1, 457)} = 9.784$; p≤.01; $\eta^2_p = .021$) and a significant interaction time*group*gender (victimization $F_{(1, 457)} = .295$; n.s.; bullying $F_{(1, 457)} = 9.421$; p≤.01; $\eta^2_p = .020$). In order to understand the meaning of the last significant interaction we conducted repeated-measures ANOVAs (fully within) in each one of the four conditions (males experimental group; females experimental group; males control group; females control group). We found a significant decrease over time in bullying in experimental group both for males ($F_{(1, 66)} = 16.751$; p≤.001; $\eta^2_p = .20$) and females ($F_{(1, 166)} = 14.062$; p≤.001; $\eta^2_p = .078$) while for the control group we found a significant increase for male ($F_{(1, 172)} = 8.492$; p≤.01; $\eta^2_p = .047$) and no significant effect of time for females ($F_{(1, 53)} = 2.544$; n.s.)

CYBER CONTEXT VARIABLES- Results for cybervictimization and cyberbullying showed significant main effects of group (cybervictimization $F_{(1, 457)} = 5.504$; p≤.05; $\eta^2_p = .012$; cyberbullying $F_{(1, 457)} = 12.964$; p≤.001; $\eta^2_p = .028$) and a significant interaction for time*group (cybervictimization $F_{(1, 457)} = 13.369$; p≤.001; $\eta^2_p = .028$; cyberbullying $F_{(1, 457)} = 5.728$; p≤.05; $\eta^2_p = .012$). Only for cybervictimization we found a significant main effect of time (cybervictimization $F_{(1, 457)} = 13.844$; p≤.001; $\eta^2_p = .029$; cyberbullying $F_{(1, 457)} = .057$; n.s.). No significant main effect of gender (cybervictimization $F_{(1, 457)} = 0.264$; n.s; cyberbullying $F_{(1, 457)} = 2.069$; n.s.), interaction time*gender (cybervictimization $F_{(1, 457)} = .110$; n.s; cyberbullying $F_{(1, 457)} = 2.133$; n.s.), group*gender interaction (cybervictimization $F_{(1, 457)} = .039$; n.s.; cyberbullying $F_{(1, 457)} = .632$; n.s.) and time*group*gender interaction (cybervictimization $F_{(1, 457)} = .243$; n.s.; cyberbullying $F_{(1, 457)} = 1.828$; n.s.) were found for both variables.
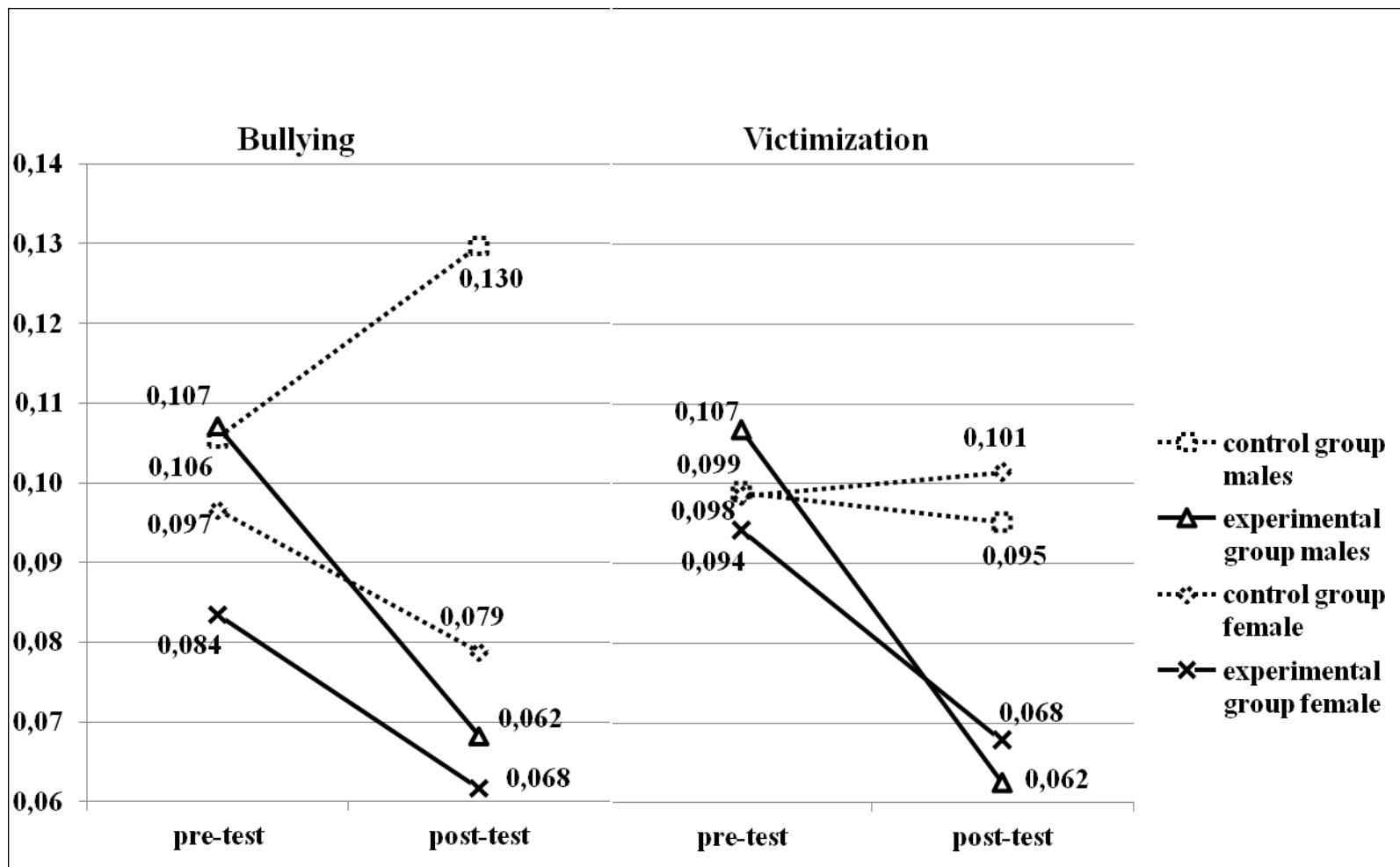
**Figure 10 Trends for victimization and bullying in both groups (experimental and control) considering gender: pre- and post-test means.**
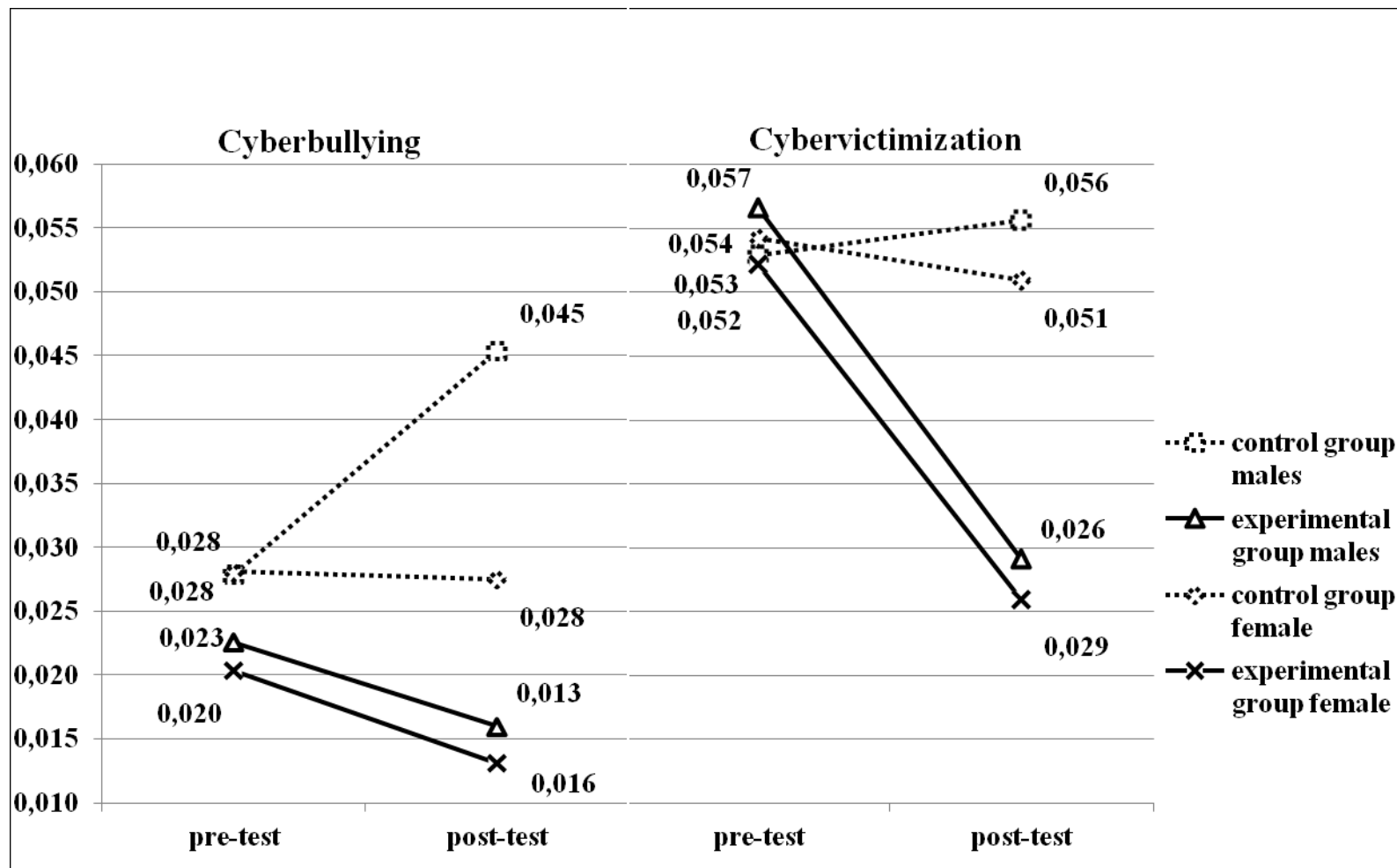
**Figure 11 Trends for cybervictimization and cyberbullying in both groups (experimental and control) considering gender: pre- and post-test means.**

## 5. DISCUSSION AND CONCLUSION

Starting from the increased attention to and demand for an evidence-based framework that can inform interventions and policies against bullying (Eisner & Malti, 2012; Ttofi & Farrington, 2010), the aim of the present study was to analyze the efficacy of the *Noncadiamointrappola!* program in terms of bullying and cyberbullying reduction, as well as the possible decrease of victims' internalizing symptoms. Specifically, we attempted to match as much as possible the standards of evidence defined in the literature – e.g. Prevention Science (Flay et al., 2005) – in evaluating the effects of the modified 3rd Edition of the program.

We found that the program significantly predicts change in all targeted variables: victimization, bullying, cybervictimization, and cyberbullying. Specifically, while the phenomena were quite stable during the first year of high school in the control group, the experimental group exhibited a significant decrease over time in all negative outcome variables. At the same time, effects of the program were still present six months after the end of the program. The program was efficacious, and the outcomes did not decay over time; we found significant long-term effects on victimization, bullying, cybervictimization, and cyberbullying. Additionally, we found effects of the program such that it fostered a greater potential for students to have a "non-detrimental outcomes". The students in the experimental group were more likely to pass the 9th grade and to be in the subsequent class the following year, but we urge caution in interpreting this effect; we lack highly relevant follow up information for a subset of our sample. The efficacy of the program on all the target variables was confirmed also in another independent, quasi-experimental trial; in carrying out the same program, we found similar results. Gender did not have interactive effects with the program, such that both males and females of the experimental group reported a decreased prominence of bullying/cyberbullying phenomena over time in a similar way.

The current 3rd Edition of the program represents a further development of the previous versions. Specifically, the new and components played a strengthening role in the efficacy of the program. While not all the outcomes were affected by the intervention in the 2nd and 1st Editions (Menesini, Nocentini, & Palladino, 2012; Menesini & Nocentini, 2012; Palladino et al., 2012), victimization, bullying, cybervictimization and cyberbullying decreased in the experimental group in the current edition.

In the present study, we also analyzed the effects of the program on another important aspect: internalizing symptoms. The general aim of the program was not to *directly* target this aspect. While we targeted internalizing symptoms, this goal was secondary to targeting bullying and

cyberbullying. The starting point of the whole intervention against bullying and cyberbullying is the short or long term impact on the youth physical, psychological, relational and general well-being related to these problems (Bauman et al., 2013; Cooper et al., 2012; Farrington et al., 2011; Garaigordobil, 2011; Gini & Pozzoli, 2009; Hinduja & Patchin, 2010; Kim & Leventhal, 2008; Reijntjes et al., 2010; Ttofi et al., 2011a; van Dam et al., 2012). Consequently, researchers, psychologists, social workers, and so on, have put a great deal of effort towards doing something to stop these problems, thus buffering against possible negative consequences (Smith & Schneider, 2004; Ttofi & Farrington, 2011; Vreeman & Carroll, 2007). The main aim of many evaluation studies were to analyze the impact of the program on the target variables (primarily bullying and, in recent studies, cyberbullying) and only few of them have exacerbated the effects on the psychological suffering of victims. For example, KiVa efficacy in reducing students' internalizing problems and the changes in anxiety and depression were found to be predicted by reduction in victimization (Williford et al., 2012b). In order to improve our knowledge about the effects of the Noncadiamointrapola! program on other important variables, we tested the effect on internalizing symptoms: the program was efficacious in reducing them. Specifically, we tested both direct and indirect effects in a mediation model. As we expected, the decrease in victimization and cybervictimization completely accounted for the effect of the program on internalizing symptoms: only indirect effect remained significant while the direct one was no longer. Looking in depth into the significant indirect effect, we found that only the effect through cybervictimization remain significant. In other words, the program was efficacious in reducing internalizing symptoms in the experimental group through the decrease in cybervictimization over and above the mediational effect of the decrease in victimization.

Probably we can also see this result as small contribution in the open debate about the overlap between bullying and cyberbullying construct (Hinduja & Patchin, 2012; Koops, 2012; Menesini, 2012; Olweus, 2012a; Smith, 2012). Both contexts of victimization explain the internalizing symptoms (Bonanno & Hymel, 2013; Menesini, Calussi, et al., 2012). It is quite the same in our data: the intercepts are strictly correlated but the stronger relation is between cybervictimization and internalizing symptoms. Specifically, the decrease in cybervictimization led into a decrease in internalizing symptoms, accounting also for the effect of the reduction in victimization. In this case, the importance in looking at the cyber context, and not simply absorbing cyberbullying under the traditional bullying construct (Menesini, 2012; Olweus, 2012a, 2012b), should be noted. Our results suggested that maintaining a binocular attention towards both sides of the context seems to be more

promising. While some school-based programs devoted to counteracting bullying have also found parallel effects on cyberbullying (Gradinger, 2013; Williford et al., 2013), recently developed programs have focused largely (and sometimes exclusively) on cyberbullying (del Rey-Alamillo et al., 2012; Ortega-Ruiz et al., 2012; Wölfer et al., 2013). Williford and colleagues (2013), looking at the effect size of KiVa program on cyberbullying and cybervictimization (above and beyond traditional forms), pointed out that school-based antibullying interventions may need to incorporate additional components aiming specifically to the reduction of cyberbullying. Similarly , Slonje and colleagues (2013) suggest that existing program that are efficacious (Ttofi & Farrington, 2011) can arguably be extended to include cyberbullying as an equally important topic without major changes. *Noncadiamointrappola!* program is focused on both contexts of bullying and, looking at the overall results we found, we may confirm how this suggested approach can be useful.

The present study attempted to be responsive to the call for high-quality evaluations with theoretically grounded interventions and multiple measures of effectiveness (Baldry & Farrington, 2007; Ttofi & Farrington, 2011), following the standards of evidence (Flay et al., 2005). Despite the strengths that we have emphasized, it is important that we acknowledge the primary limitations of this research. Firstly, we lacked an important aspect of evidence based evaluation: the experimental and control samples were only paired on the characteristics of school (matched control design). In other words, although we tried, the assignment to one or another condition was not randomized. For this reason, both in preliminary analyses and in all the subsequent analyses, we tested for differences in the two groups and controlled for possible effects of the sampling (e.g., effects of the program on the intercepts in each growth curves model). Fly and colleagues (2005), in describing the standard to match for an evidence based intervention, declared that RCTs should be considered to be the method of choice for answering questions about whether or not an intervention is efficacious. At the same time they said that "for some kinds of policy or community-wide interventions, where randomization is impossible, other approaches may be acceptable, but only when used with caution and methodological expertise, and when careful attention is given to ruling out plausible alternative explanations" (page 157). Specifically, the authors said that matched control designs – as in the case of *Noncadiamointrappola!* program - "are credible only when there is a pre-test demonstration of group equivalence (...) Another common strategy is to use statistical techniques to remove the variability in the outcomes associated with group differences at baseline" (page 158). We checked for pre-test differences both on the target

variables such as victimization, bullying, cybervictimization, and cyberbullying, and on other important variables such as attitude toward victims, moral disengagement, and empathy. At the same time, we controlled for possible effects of the sampling in each model we tested: no differences between control and experimental group were found among any of these variables. In the literature, only a few studies have used RCTs in evaluating antibullying intervention (Ttofi & Farrington, 2011) showing how much it is difficult to use a rigorous experimental design in educational settings (Slavin, 2002, 2008; Spiel & Strohmeier, 2012). Concluding, the methods we used can be considered at least acceptable but it would be desirable to replicate ours finding using RCTs.

Lastly, the current research possessed two analytic limitations. Only in the second independent quasi-experimental trial we tested for gender effects on efficacy of the program. Unfortunately, for the complexity of the models about testing effects of the program on internalizing symptoms (first quasi experimental trial), no gender analyses were performed. Looking at the literature on intervention effects on internalizing problems (Williford et al., 2013), gender differences are often present. While seems that the program genuinely applies similarly to both genders (results in second quasi-experimental trial), further analyses on gender effects should be devoted to disentangle possible bias in results we found about internalizing symptoms. Secondly, the program has a school-based approach and specifically "a classroom-based approach"; for this reason multilevel analyses would be important. Unfortunately, the small number of classes (especially, only nine classes for control group) and the complexity of models we tested did not allow us to use more sophisticated multilevel analyses: further studies should address this problematic point.

Despite these limitations, the present study integrates previous knowledge and gives some relevant suggestions to researchers and practitioners currently working on bullying and cyberbullying. In particular, starting from the standards of evidence (Flay et al., 2005), we evaluated the *Noncadiamointrappola!* program under different aspects. The results we obtained allow us to say that it was efficacious in counteracting bullying and cyberbullying phenomena and, in turn, in buffering against internalizing symptoms.

# CHAPTER IV

# MEDIATING MECHANISMS: THE ROLE OF SUPPORT SEEKING IN REDUCING CYBERVICTIMIZATION

## 1. INTRODUCTION

The Committee of the Society for Prevention Research developed overlapping sets of standards to assist practitioners, policy makers, and administrators to determine which interventions are efficacious, which are effective, and which are ready for dissemination (Flay et al., 2005). At the end of their paper, the Committee also identified possible standards as being *desirable* for current and future areas of prevention science as the field develops. One such standard is the analysis of program effects on mediators, which was deemed essential to understanding the existence of causal mechanisms. According to these standards, a program may be declared to be efficacious on the basis of the claimed effects found on target outcome variables. At the same time, the measure of processes hypothesized to lead to the final outcome and mediation analyses can provide valuable, in-depth information about *how* the program works (Baron & Kenny, 1986; MacKinnon, 2008). The Committee stated that "The specific outcomes that would be affected by a prevention program or policy are informed by theory and by prior empirical analyses (...) It is highly desirable that future efficacy studies include measures of theoretically based mediator variables and tests of their hypothesized mechanisms of action" (Flay et al., 2005, pages 155-156).

The current literature on antibullying programs is primarily focused on the analysis of efficacy with specific regard to the outcome variables; only a few published studies have directly addressed the question of mediational mechanisms (Eisner & Malti, 2012; Palladino et al., 2012). The *Noncadiamointrappola!* program 3$^{rd}$ Edition was efficacious in reducing

bullying and cyberbullying phenomena and, in turn, internalizing symptoms as well[15]. But the question of "*how* did it work" remains. The aim of the present study is to address the possible processes involved in the reduction of participants' cybervictimization.

Literature on cyberbullying tends to focus on adaptive and maladaptive coping strategies that can maintain or stop the incidents or that can lead to victims' psychological suffering. In reviewing empirical evidence on how students, parents, and schools can cope with cyberbullying, Perren, Corcoran, and Cowie (2012) concluded by affirming that there is a clear lack of evidence concerning successful responses. They suggested that, along with longitudinal studies, intervention studies could be helpful for assisting in the acquisition of in-depth knowledge of the efficacy of coping strategies in cyber contexts.

## 1.1. Cyber-coping strategies

The idiosyncrasies of the cyber context (relative to face-to-face contexts) have impacted the opportunities available to use specific coping strategies in dealing a peers attack. Coping as a process, changes over time and in relation to the situational contexts in which it occurs (Lazarus, 1993). The cognitive-relational theory of stress emphasizes the continuous, reciprocal nature of the interaction between the person and the environment (Lazarus, 1991). Two main dimensions are commonly differentiated in coping theory: emotion- versus problem-oriented coping strategies (Lazarus & Folkman, 1984). People tend to use problem-focused coping when they believe that their own resources or critical aspects of the situation can potentially be changed. On the other hand, people tend to use emotion-focused coping when they believe that they can do little to change the stressful situation; controlling the emotional response to the stressful situation by redefining or ignoring it, or by focussing on the positive aspects of the situation. Bullying (Tenenbaum et al., 2011) and cyberbullying (Parris, Varjas, Meyers, & Cutts, 2011) researchers have claimed that this subdivision may be problematic, as some coping strategies (such as support seeking) could be defined as both problem- and emotion-focused (Skinner, Edge, Altman, & Sherwood, 2003). Current research on coping with cyberbullying adopts a more descriptive approach and differentiates between specific behavioural and emotional reactions (Perren et al., 2012).

What do people *do* (or suggest to do) in cyberbullying incidents? Students often report technical coping strategies such as blocking people online, and changing one's password, username or mobile phone number (Slonje et al., 2013). Doing nothing/ignoring, blocking

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[15] Results about efficacy of the program are in depth analyzed and discussed in chapter three of the present dissertation.

one's identity, keeping a record of offensive e-mails and texts, reporting the occurrence to police/authorities, contacting the service provider, and asking the perpetrator to stop were also identified as methods to deal it (Aricak et al., 2008; Hinduja & Patchin, 2008; Kowalski et al., 2008). Cybervictims can also remove themselves from the website where bullying occurs, stay offline, talk about their experience with a friend, or inform an adult about what happened (Hinduja & Patchin, 2009). Using experimental methods, Pieschl, Porsch, Kahl, and Klockenbusch (2013) found that different types of cyberbullying are related to different patterns of relevant coping strategies. In presenting cyberbullying scenarios to adolescents, they found that active coping was more pronounced for harassment than for outing, and harassment results in more social (seeking support from adults or peers), technical (notifying the internet service provider, change account settings, or block contact), and legal (going to the police) coping and in less passive coping (ignoring the incident or engaging in helpless behaviour) as compared to outing. In a qualitative study, (Parris et al., 2011) three primary coping themes were found: reactive coping, preventive coping, and no way to prevent cyberbullying. Reactive coping included seeking social support or avoiding the cyberbullying situation by deleting or ignoring messages. Preventive coping strategies included talking in person and increased security and awareness. Some students reported that there was no way to reduce cyberbullying. This study revealed that high school students are less likely to use seeking social support, compared with other strategies, when they cope with cyberbullying. Pupils 11 through 16 years old in England recommended blocking/avoiding messages and telling someone as the best coping strategies, however, many cybervictims had told nobody about such incidents (Smith et al., 2008). Among college students, cybervictims report that the most frequent behavioural responses to cope with incidents are: telling someone, avoiding friends or peers, getting revenge, and cease going to events (Schenk & Fremouw, 2012). Specifically, 80% of females and 53% of males reported to someone what happened: there appear to be differences that vary along different factors, such as age and gender. In fact, this strong use of seeking social support was found, to our knowledge, in only a single study with adolescents. Livingstone and colleagues (2011) in a study involving children aged 9–16 years old in 25 different countries found that 77% of cybervictims had talked to someone. Specifically: 52% spoke to a friend, 13% to a sibling, 42% to a parent, 8% to another adult they trust, and 7% to a teacher.

Seeking social support was a coping strategy reported by students in multiple lines of research (Dehue et al., 2008; Kowalski et al., 2008; Slonje et al., 2013; Slonje & Smith, 2008). Although some students tell their friends or parents about cyberbullying incidents, researchers

have suggested that cybervictims were less likely to seek help when compared to traditional victims (Dehue et al., 2008; Dooley et al., 2010). Except for the study of Livingston et al. (2011), the literature on adolescents stressed the result that rather few individuals seem to seek help from others and, if the cybervictims do tell someone, their first choice has been to tell a friend, then a parent, and lastly a teacher (Slonje et al., 2013). One possible reason for the low involvement of adults could be connected to young individuals fearing a loss of privileges (e.g., removal of their mobile phone and/or internet access), or because they fear parents would simply advise them to ignore the situation, in addition to perceptions that adults would not be able to help them due to a lack of cyberspace familiarity (Kowalski et al., 2008; Mishna, Saini, & Solomon, 2009; Smith et al., 2008; Stacey, 2009). In a web-based survey of 12–17 year olds, Juvonen and Gross (2008) found that 90% of cybervictims did not tell their parents about their experiences, with 50% of them justifying this choice with "I need to learn to deal with it myself". Another reason could be related to the students' lack of confidence that cyberbullying could be stopped (Smith et al. 2008). Previous research has also demonstrated that when seeking help for cyberbullying, students need to perceive that the adult was trustworthy and could offer resources (Hinduja & Patchin, 2008; Smith et al. 2008). We know that all of the mentioned coping strategies can be potentially implemented by children. Therefore we might question whether all of the mentioned coping strategies are *successful* or not. It is important to properly address this question on the basis of empirical results, as enhancing successful coping strategies could help intervention programs to deal with cyberbullying in the best way. In their review, Perren and colleagues (2012) attempted to find *empirical evidence* supporting *successful* responses to cyberbullying. The authors differentiated between three different response domains to this problem by students, parents and schools: 1) reducing risks (prevention); 2) combating the problem (trying to stop the problem); and 3) buffering against the negative impact on the victims. As cyberbullying has negative consequences for victims (see the first chapter of the present dissertation), specific coping strategies might also be applied to enhance victims' well- being and buffer against the negative impact of cyberbullying. Victims themselves may try to cope emotionally with the problem wherein parents, friends or peers may offer emotional and instrumental support. Unfortunately, the authors were not able to draft a clear conclusion due to only a few prior studies having empirically analyzed whether the use of specific coping strategies is more effective in counteracting cyberbullying occurrences or in buffering its negative effects. In subsequent years, there has been increased attention towards addressing this issues, although the most appropriate methodological approaches such as longitudinal or experimental studies

have not always been employed (Dooley et al., 2010; Machmutow et al., 2012; Völlink et al., 2013). Different studies have analyzed the coping strategies that can lead to, or buffer against, psychological suffering. In a cross-sectional study, Völlink et al. (2013) found that cybervictims used more emotional-focused coping than both cyberbullies-victims and not involved people. At the same time they found no significant relationship between cyberbullying-specific problem-focused coping and depression and health complaints in cybervictims. Conversely, using a longitudinal approach, Machmutow and colleagues (2012) found that helpless reactions were positively associated with depressive symptoms. Moreover, cybervictims recommending assertive coping strategies (e.g. finding and contacting the bully) showed higher levels of depressive symptoms. Support-seeking from peers and family showed a significant buffering effect: cybervictims who recommended seeking close support showed lower levels of depressive symptoms six months later.

Summarizing, "how to best cope" is a relevant concern for the maintenance of emotional and psychological well-being in the presence of adversity (Lazarus, 2006). Several types of coping strategies have been investigated in relation to experiences of cybervictimization: supportive strategies (e.g. seeking social support from adults, teachers, friends or external institutions), reactions towards cyberbullies (e.g. retaliation, confrontation), technical strategies (e.g. reporting via "abuse" buttons, blocking the sender), and avoiding and emotion-focused strategies (e.g. doing nothing, ignoring, helplessness) (Perren et al., 2012). Although help-seeking was often recommended as the most effective coping strategy both to stop the incidents and to deal positively with negative effects (Machmutow et al., 2012), we know that children do not spontaneously engage in such strategies in either traditional (Tenenbaum et al., 2011) or cyber contexts with reference to bullying (Aricak et al., 2008; Dehue et al., 2008; Dooley et al., 2010; Juvonen & Gross, 2008; Kanetsuna et al., 2006; Kowalski et al., 2008; Machmutow et al., 2012; Slonje et al., 2013; Smith et al., 2008; Völlink et al., 2013).

## 1.2. Working on individual and contextual aspects: The *Noncadiamointrappola!* program and social support (seeking).

In the *Noncadiamointrappola!* program 2nd Edition (Palladino et al., 2012), we found a significant increase in adaptive coping strategies and a significant decrease in maladaptive coping strategies in the experimental group; these changes mediated the changes in the outcome variables. In particular, a decrease in avoidance predicted a decrease in victimization

and cybervictimization in the entire experimental group, whereas an increase in problem solving predicted a decrease in cybervictimization only in the peer educators group but not among the other students of the experimental classes. An unexpected result was a nonsignificant increasing trend in seeking social support as a positive coping strategy. We suggest that it is might be easier to change coping strategies that depend on individuals (rather than the situation), such as problem solving or avoidance. On the contrary, in order to adopt a coping strategy based on seeking social support, an individual needs to first trust other people in his/her social context (Hinduja & Patchin, 2008; Smith et al. 2008).

Using qualitative research methods, Tenenbaum and colleagues (2011) interviewed victims about their coping strategies in dealing with bullying. A coping model emerged from this study that included the primary categories of problem-focused coping and emotion-focused coping and eight subcategories (self-defence, stand up to the bully, seeking social support, distancing, internalizing, tension-reduction/externalizing, focus on the positive, and self-blame). Victims implemented primarily problem-focused coping strategies in an attempt to address bullying, but with limited perceived success. At the same time, the authors found that victims implemented multiple strategies simultaneously. Emotion-focused coping strategies did not directly eliminate bullying; it is likely that these strategies allowed victims to reduce stress and handle bullying situations more skilfully. While some children reported that seeking advice from an adult could be helpful, victims most often shared that reporting their bullying to an adult was an ineffective form of coping. Seeking social support was a coping strategy that victims reported using from both a problem-focused and emotion-focused perspective concurrently, and it is often viewed by victims as one of the more successful approaches. Victims found that seeking social support and advice helped them to learn different ways of addressing their bullies as well as providing them with positive feedback and support from trusted peers and adults. These results suggest that seeking emotional support and problem-solving advice from a caring individual may be more effective than simply reporting the problem to a teacher, which ostensibly transfers the responsibility of resolving the problem to someone else.

Starting with the results of the 2nd Edition of the program and suggestions from other research (Machmutow et al., 2012; Perren et al., 2012; Slonje et al., 2013; Tenenbaum et al., 2011), we decided to develop two main aspects of the *Noncadiamointrappola!* program 3rd current Edition: empathy and coping strategies[16]. We modified the peer educator's training and the face-to-face activities. Both steps of the program were focused specifically on victims' and

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[16] For further details about the program's components and steps, see the third chapter of the present dissertation.

bystanders' emotions and "how to cope" with bullying and cyberbullying incidents. Problem-solving strategies were a strong focus of the program for peer educators and their classmates during face-to-face activities. Students used problem-solving strategies in each class to understand the variety of possible solutions for bullying and cyberbullying in each small group. At the end of their cooperative work, the students decided upon the best solution and discussed their choice with the other groups. Posters depicting the problem solving process, possible solutions, and the benefits/drawbacks of each solution were hung in the classrooms until the end of the scholastic year as a static source for students to reference. Often, one of the best coping strategies chosen by students was *seeking support*, both on informational/instrumental dimension (e.g., go to the police or ask help from teachers) and on the emotional dimension (e.g., go to friends to be encouraged and supported) of acquiring help from others[17]. Students were also introduced to authority figures (postal police psychologist) that provided information about legal consequences for bullies and cyberbullies and on their investigation methods trying to improve the trusting in them. Nevertheless, the program is designed around a peer-led model such that our peer educators/peer supporters are trained and ready to be supportive of their peers. Additionally, other students in the experimental classes worked intensively on experiencing empathy and recognizing victims' emotions,  both during the first (led by adults) and second (led by peer educators) parts of the program. We worked on processes at the individual level (empathy and coping strategies), reinforcing the notion of changing the contextual aspects of bullying phenomena. This was done by encouraging intervention on the part of bystanders, suggesting that this was an ideal way to create a better context for the victims.


## 2.  AIMS

The aim of the present study was to analyze the mediation processes that led to a decrease in cybervictimization in the experimental group of the *Noncadiamointrappola!* program. We focused on seeking support and we looked at both aspects of this adaptive coping strategy: informational/instrumental aspects (distal advice), and at the more emotional way of getting help from people (close support). Specifically, we wanted to:

  (a.) test the program effects on the mediation variables: distal advice and close support coping strategies.

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[17] On the Noncadiamointrappola Facebook page, are displayed all the posters the students did.

(b.) analyze the cyber-coping strategies mediation processes as a way to examine the direct and indirect effects of the intervention on cybervictimization. Firstly, we want to test mediation effects in two separate models: one with distal advice as a single mediator and the other with close support as a single mediator. Then, we want to test indirect effects considering simultaneously both aspects of seeking social support.

We hypothesize that an increase in seeking support coping strategies (both distal advice and close support) will lead to a reduction in cybervictimization. The *Noncadiamointrappola!* program addressed the aspects of *"how to cope"* with bullying and cyberbullying situations, and we hypothesized that it can be efficacious in reducing cybervictimization in the experimental group through an increase in distal advice and close support as cyber-coping strategies.

# 3. MATERIALS AND METHODS

## 3. 1. Participants and procedure

The participant pool was identical to that described in the third chapter of the present dissertation - sections 3.1, first quasi-experimental trial, school year 2011/2012, page 68.

## 3. 2. Measures

CYBERVICTIMIZATION

The Cybervictimization Scale of the Florence CyberBullying-cyberVictimization Scales (FCBVSs) was used (see the second chapter of this dissertation for details about the scales and the psychometrical properties). In the third chapter of the present dissertation (section 3.3) are showed the alpha coefficients. In Appendix 2 (Table 23) means and standard deviation are reported.

CYBER COPING STRATEGIES

The Coping With CyberBullying scale (CWCB) (Sticca et al., 2013) was developed through a multi-stage process. Firstly, open-ended questions on coping with cyberbullying were administered in order to create the 1st version of the questionnaire; this included four cyberbullying scenarios followed by 14 self-report items (Machmutow et al., 2012). The 2nd

version of the questionnaire, used in the present study, is a revision of the previous one and is composed of 6 subscales (i.e., distal advice, helplessness/self-blame, retaliation, close support, assertiveness, and active ignoring). A vignette describing a general, nonspecific cyberbullying scenario was followed by 18 items that asked participants "What would you do in this situation? Please rate each possible reaction based on how likely you are to use them". Items were rated on a Likert scale from 1 (definitely not) to 4 (definitely) points. The construct validity of the questionnaire was cross-culturally tested in three groups of adolescents: Italian, Swiss, and Irish. The final questionnaire was composed of 15 items belonging to 6 scales: 3 items for Distal advice ("I would go to the police"; "I would inform a teacher or the principal" and "I would seek professional advice"); 3 items for Close Support ("I would go to someone who listens to me and comforts me"; "I would spend time with my friends to take my mind off it" and "I would go to someone who accepts me the way I am"); 3 items for Helplessness/self-blame (e.g. "I would think that it is my fault"); 2 items for Retaliation (e.g. "I would get back at him/her personally"); 2 items for Assertiveness (e.g. "I would tell the bully to stop it") and 2 items for Active ignoring (e.g. "I would avoid any further contact with the bully "). For the purposes of the present study, we used data pertinent to "support seeking" and, specifically, from two subscales: Distant Advice and Close Support. Whereas distal advice implies the more informational and instrumental aspects of relief, close support targets a more emotional way of getting help from people (Sticca et al., 2013). The scales demonstrated good reliability in all the waves of data collection: both for Close Support Scale (Pre measure: α=.73; Middle measure: α=.74; Post measure: α=.76) and Distal Advice Scale (Pre measure: α=.67; Middle measure: α=.71; Post measure: α=.69). In Appendix 2 (Table 25) means and standard deviation are reported as well correlations among them and cybervictimization (Table 26).

## 3. 3.     Overview of the Analyses

All analyses were conducted via Mplus 7.0 (Muthén & Muthén, 1998-2007). All models were evaluated by means of the following overall indices: the chi-square ($\chi^2$) statistic, the root-mean-squared error of approximation (RMSEA), and the comparative fit index (CFI). Recommended cut-off points for these measures are 0.08 (Brown, Cudek, 1993) or 0.06 (Hu, Bentler, 1998) for RMSEA and 0.90 or 0.95 for CFI (Bollen, 1989).

EFFECT OF THE PROGRAM ON COPING PROCESSES: DISTAL ADVICE AND CLOSE SUPPORT COPING STRATEGIES

As done for the target intervention variables and internalizing symptoms (see the third chapter, paragraphs 3.4 and 4 for further details), the estimation and prediction of longitudinal developments of distal advice and close support coping strategies were analyzed through latent growth curve models. The latent growth factors (slope and intercept) were regressed on the variable *program* (0=control group; 1= experimental group) in order to test if the program can affect the change over time of those process variables. In order to interpret the differences between control and experimental group in a meaningful way, multiple-group analysis (experimental versus control group) were conducted.

MEDIATION PROCESS MODELS: DIRECT AND INDIRECT EFFECTS ON CYBERVICTIMIZATION

A separate mediation process model for each process was carried to test if changes in cybervictimization (outcome) are the consequence of changes in processes variables (mediators) as a function of program condition (independent variable) (MacKinnon, 2008). We analyzed two mediation models: one for distal advice and the other for close support. For cybervictimization, we used the same data and the same growth curve model described in the previous chapter with regards to testing the efficacy of the program[18].

We tested both indirect and the direct effects (slope cybervictimization regressed on the program variable). The paths between the program variable and the two intercepts (outcome and mediator) were tested to be sure of the initial comparability of the two groups. The covariances between each slope and intercept are model paths, as well the covariances between the two intercepts.

Finally, we tested a single model that contained both mediational processes (distal advice and close support). We tested both indirect and direct effects. Specifically, we test for two paths of indirect effects: 1) program condition predicting a change in distal advice that in turns predicts a change on cybervictimization and 2) program predicting a change in close support that in turns predicts a change on cybervictimization. The paths between the program variable and the three intercepts were tested to be sure of the initial comparability of the two groups also in the final model. The covariances between each slope and intercept are model paths, as well the covariances between all the intercepts and between the slope of distal advice and close support because they are two aspects of social support seeking.

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[18] For further details about descriptive statistics, estimates etc., see the third chapter of the present dissertation.

# 4. RESULTS

## 4. 1. Effects of the program on processes: distal advice and close support coping strategies

Table 19 presents the fit indices of the models for distal advice and close support. In Figure 12 and Figure 13, the models of the effects of the program on the growth curve are shown for both distal advice and close support.

Both separate mediation process models fit data really well. In both models, the program significantly predicts the slope of the coping strategy (distal advice: $\beta$=.106, SE=.050, p≤.05; close support: $\beta$=.177, SE=.076, p≤.05) while it is not a significant predictor of the intercept (distal advice: $\beta$=.047, SE=.050, n.s. close support: $\beta$=.068, SE=.052, n.s.) confirming that the control and the experimental groups did not differ in their initial levels (pre measure – intercept) of both variables. The covariance between intercept and slope is in both cases significant and negative. Looking at the multiple groups latent growth curves, while control group slope means are not significant for both variables, there is a significant increase over time in the experimental group (significant positive slope means) in distal advice and close support (see Appendix 4 - Table 28 for the multiple-group estimated components of growth curves and models fit for both variables).

| | $\chi^2$ | Df | p | CFI | RMSEA (90 perc. C.I.) p <=.05 |
|---|---|---|---|---|---|
| **DISTAL ADVICE** | 3.328 | 2 | .19 | .996 | .034 (0-.096) .57 |
| **CLOSE SUPPORT** | 2.403 | 2 | .30 | .999 | .079 (0-.087).69 |

**Table 19 Effects of the program on coping strategies growth curves: fit for distal advice and close support models.**
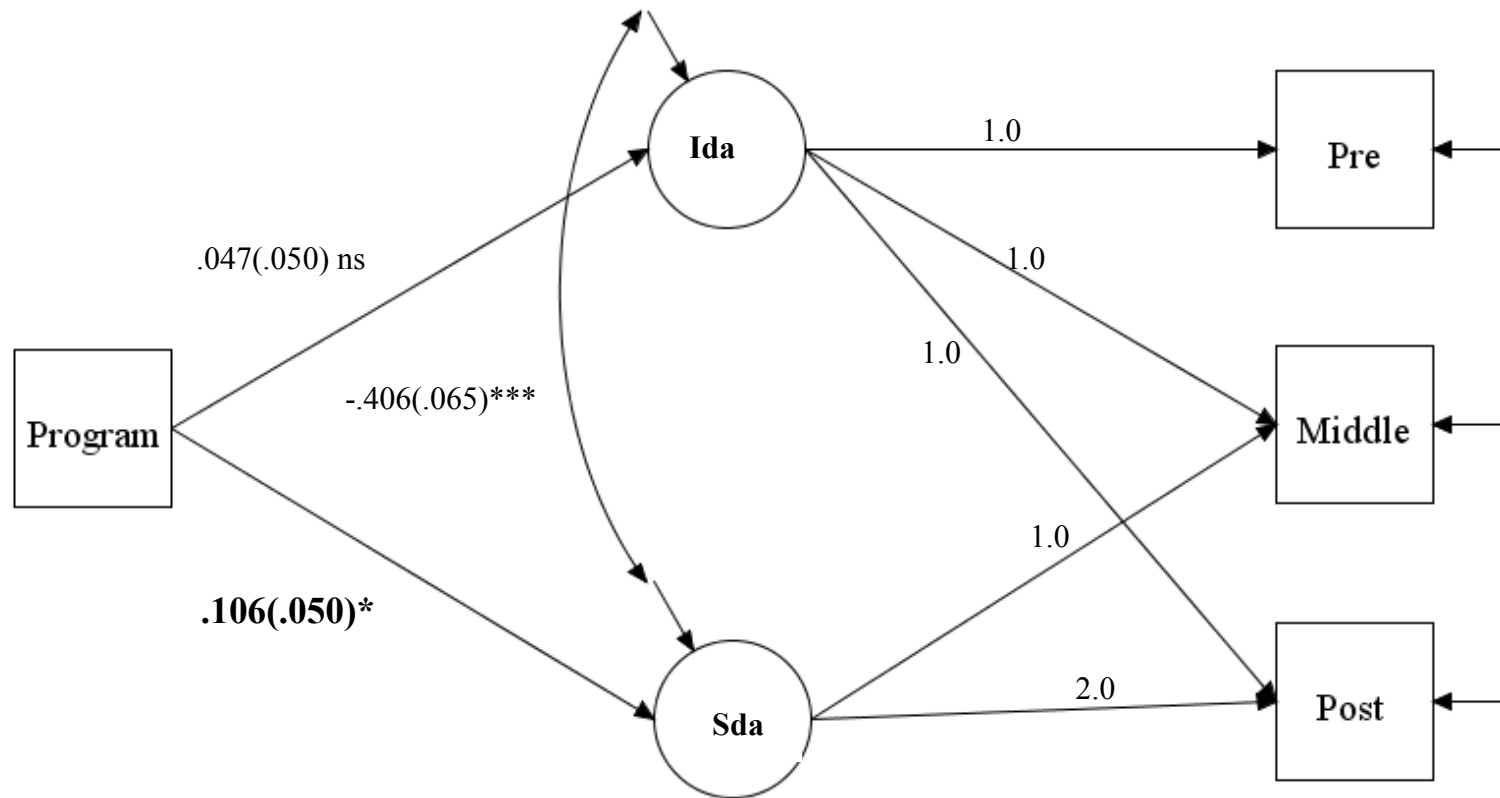
**Figure 12 Effects of the program on distal advice growth curves.**
*Note*: The path coefficients and standard errors (in brackets) are standardized estimates.
(* for p≤.05; *** for p≤.001)

**Figure 13 Effects of the program on close support growth curves.**
*Note*: The path coefficients and standard errors (in brackets) are standardized estimates.
(* for p≤.05; *** for p≤.001)

## 4. 2. Mediation process models: direct and indirect effects on cybervictimization

Firstly, we tested two separate growth curve mediation process models. In the first model, the change in distal advice coping strategy (slope) is the mediator between the program and the change in cybervictimization (slope). In the second model, the mediator is the slope of close support coping strategy. The fit indices of both models are at least acceptable. In Figure 14 (distal advice) and 15 (close support), fit indices of the mediation process model and the estimates of the paths between the independent variable (program) and the latent variables (slopes and intercepts of coping strategy and cybervictimization) are showed. In both models, covariances between each slope and intercept were significant and negative, and the initial levels of the two latent growth curves are significantly and negatively related: distal advice intercept covaries with the cybervictimization intercept ($\beta$=-.149, SE=.043, p≤.001) as well the close support intercept ($\beta$=-.79, SE=.040, p≤.05). For the distal advice mediation model, no effects of the program were found on the initial levels (effect on cybervictimization intercept: $\beta$=.034, SE=.056, ns; on distal advice intercept: $\beta$=.047, SE=.050, ns), nor for the close support mediation model (effect on cybervictimization intercept: $\beta$=.034, SE=.056, ns; on close support intercept: $\beta$=.072, SE=.050, ns), confirming the comparability of the experimental and the control groups at the pre-measure. In both models, the program significantly predicts the change over time of the mediators (effect on distal advice slope: $\beta$=.102, SE=.052, p≤.05; on close support slope: $\beta$=.132, SE=.055, p≤.05), reconfirming the efficacy of the program in reducing them. The direct effect of the program on the change in cybervictimization was significant both in the distal advice mediation model ($\beta$=-.200, SE=.58, p≤.01) and in the close support model ($\beta$=.197, SE=.060, p≤.01). The distal advice slope was a significant predictor of the slope of cybervictimization ($\beta$=-.093, SE=.045, p≤.05), as well the close support slope predicted the slope of cybervictimization ($\beta$=.125, SE=.058, p<.05). We also tested the indirect effects of the program variable on the cybervictimization slope through distal advice and close support slopes. The indirect effect is significant in both models (distal advice: $\beta$=-.015, SE=.007, p≤.05; close support: $\beta$=-.019, SE=.009, p≤.05). The increase in distal advice coping strategy is the significant mediator of the efficacy of the program in reducing cybervictimization. Parallel to this, the increase in close support coping strategy is a significant mediator of the efficacy of the program in reducing cybervictimization.

FINAL MEDIATION PROCESSES MODEL

Lastly, we tested the final mediation processes model in which both mediators are included. In Figure 16, we report all standardized coefficients of the model paths, fit indices of the model, and indirect effects of the program on cybervictimization.

The fit indices of the model were found to be acceptable. The three intercepts were significantly related with their slopes. The control and the experimental group did not differ at the initial level in the three constructs (not significant effect of the program on cybervictimization, distal advice and close support intercepts).

In the final mediation processes model, the program continues to predict the slopes of mediators (for distal advice path: $\beta$=.098, SE=.050, p$\leq$.05; for close support path: $\beta$=.135, SE=.054, p$\leq$.05) and the mediators, in turn, predict the slope of cybervictimization (for distal advice we found a tendency to significant path: $\beta$=-.077, SE=.042, p$\leq$.10; for close support the path was significant : $\beta$=-.120, SE=.058, p$\leq$.05).

We found both direct ($\beta$=-.191, SE=.059, p$\leq$.01) and indirect ($\beta$=-.024, SE=.012, p$\leq$.05) significant effects of the program on the slope of cybervictimization. Looking at the specific mediators, the indirect specific effects trend towards significance both via the slope of distal advice ($\beta$=-.008, SE=.005, p$\leq$.10) and via the slope of close support ($\beta$=-.016, SE=.009, p$\leq$.10).

These results suggest that participating at the Noncadiamointrapola! program led to a decrease in cybervictimization both directly and through the increase in seeking support coping strategies. The increase in both distal advice and close support together is a significant mediator of the efficacy of the program in reducing cybervictimization.
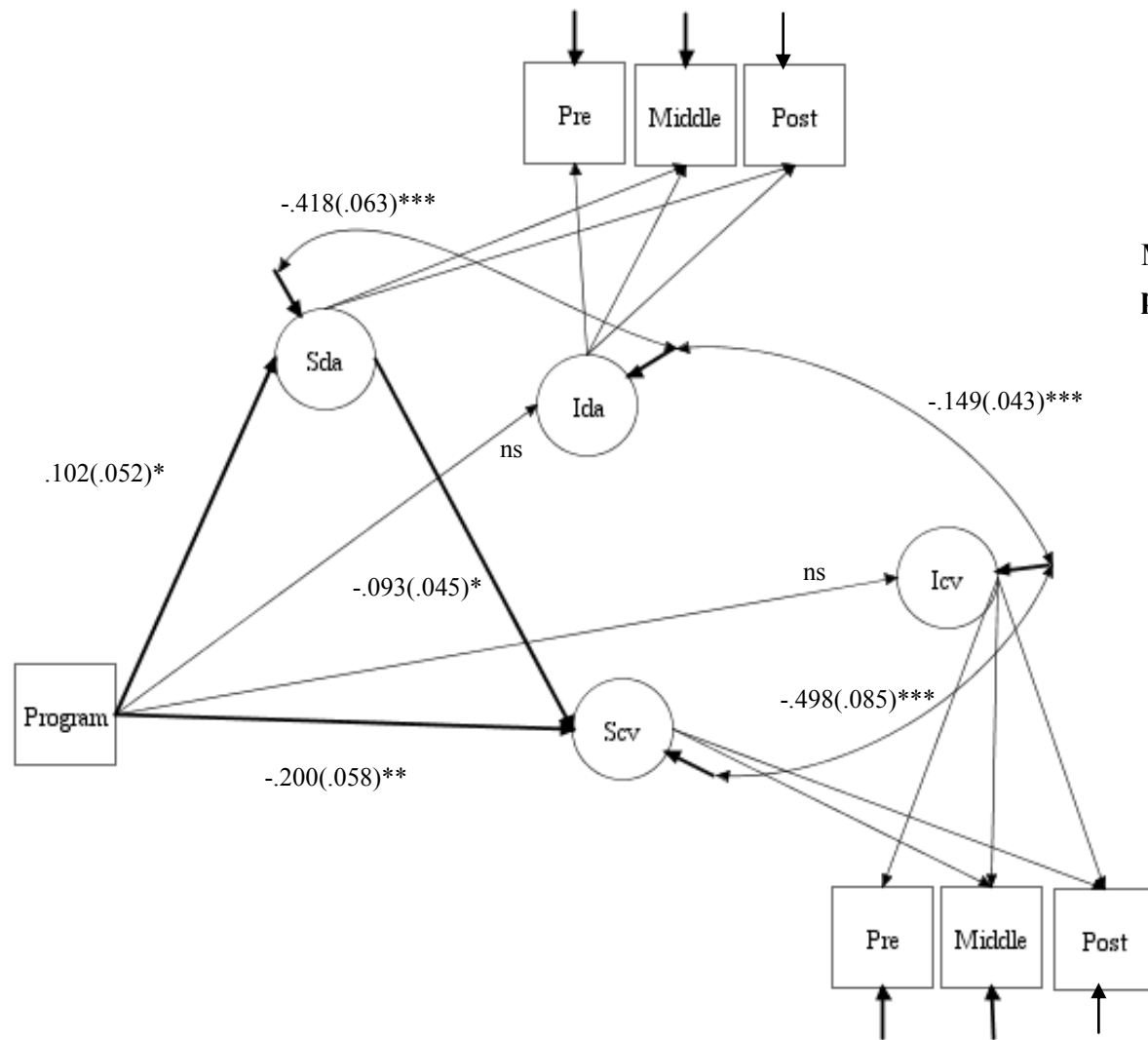
**Figure 14 Distal advice mediational model: direct and indirect effects of the program on cybervictimization.**
The path coefficients and standard errors (in brackets) are standardized estimates (* for $p \leq .05$; ** for $p \leq .01$; *** for $p \leq .001$).
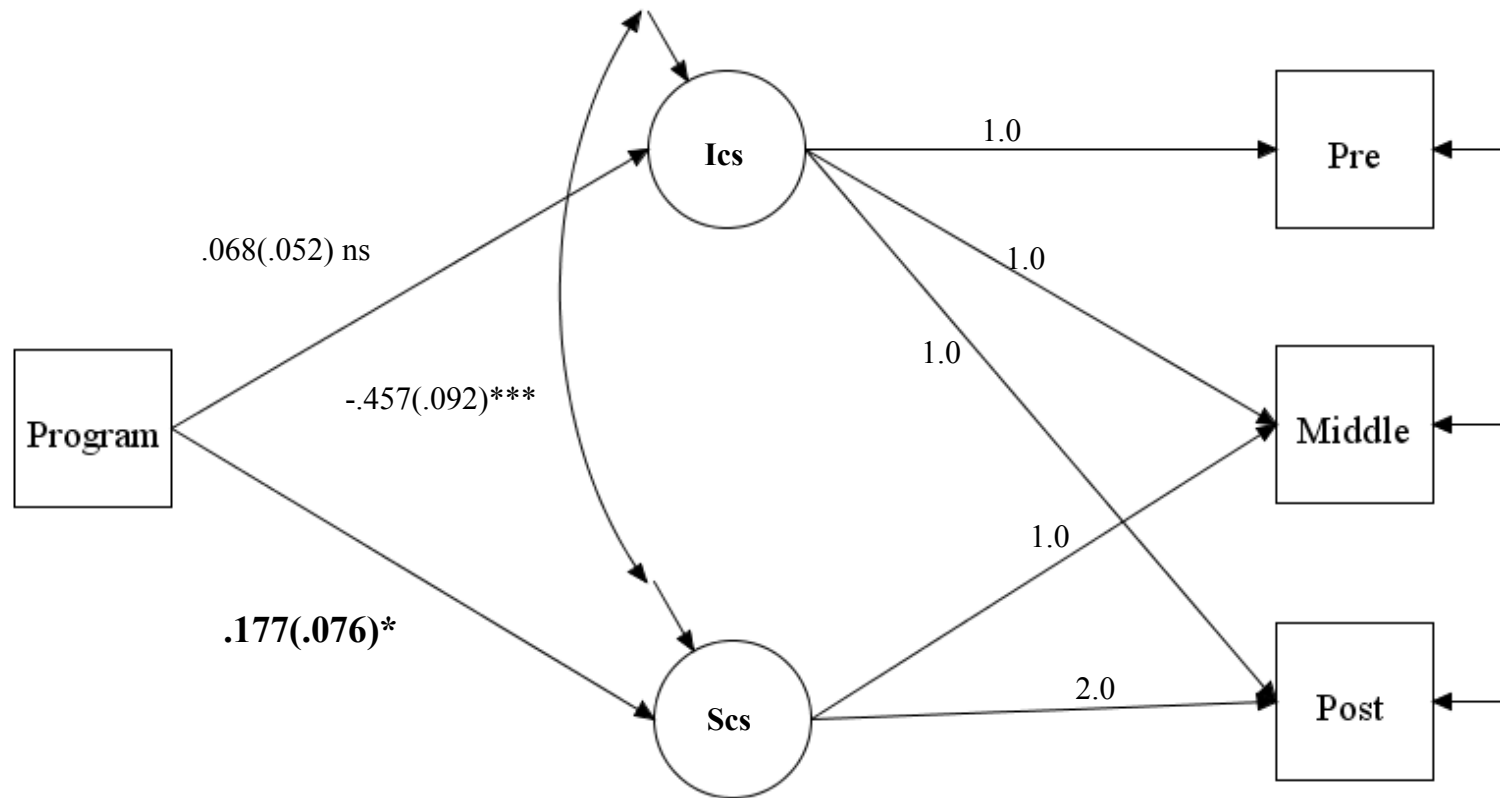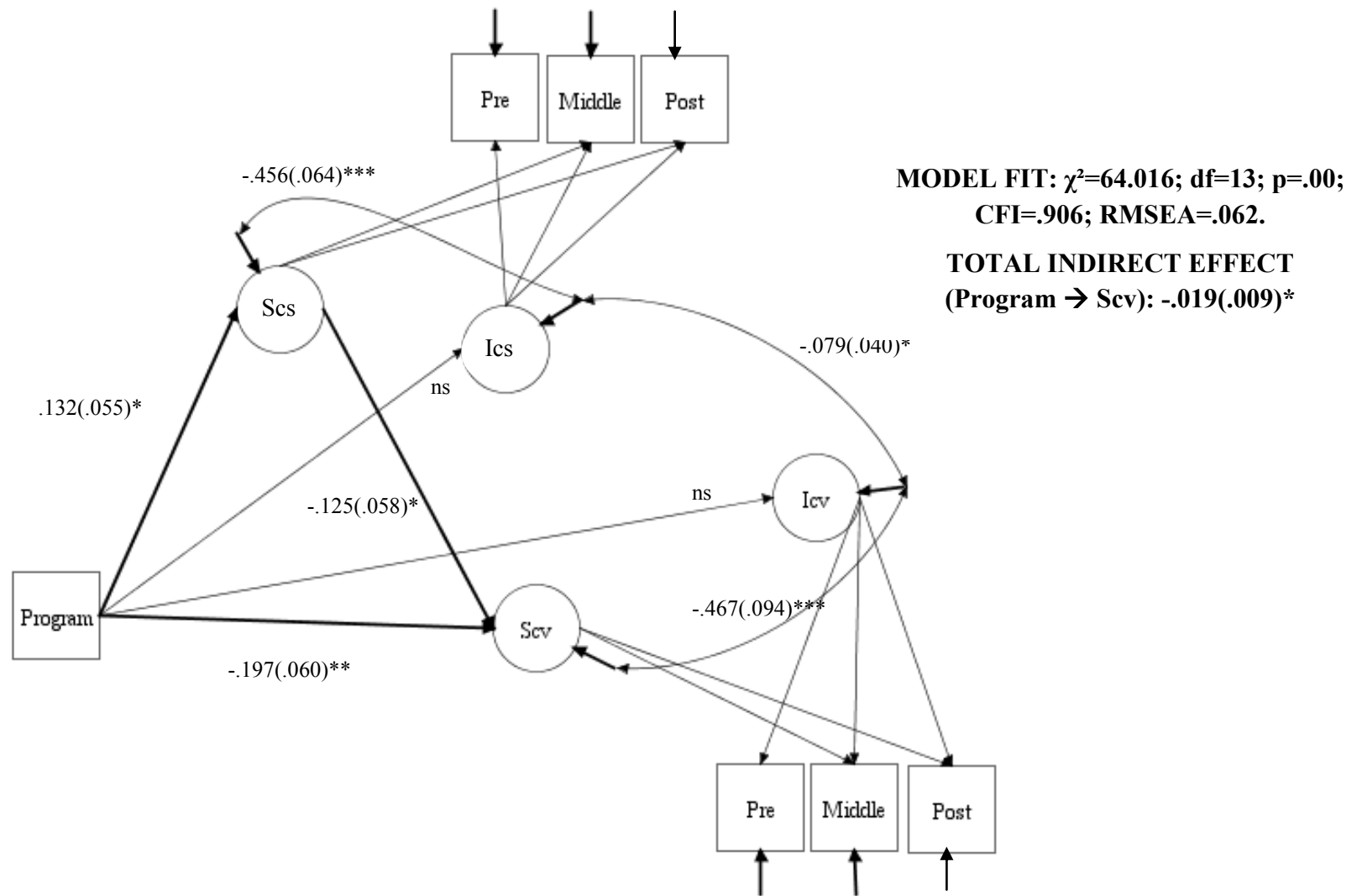
**Figure 15 Close support mediational model: direct and indirect effects of the program on cybervictimization.**
The path coefficients and standard errors (in brackets) are standardized estimates (†for p<.10; * for p≤.05; ** for p≤.01; *** for p≤.001).
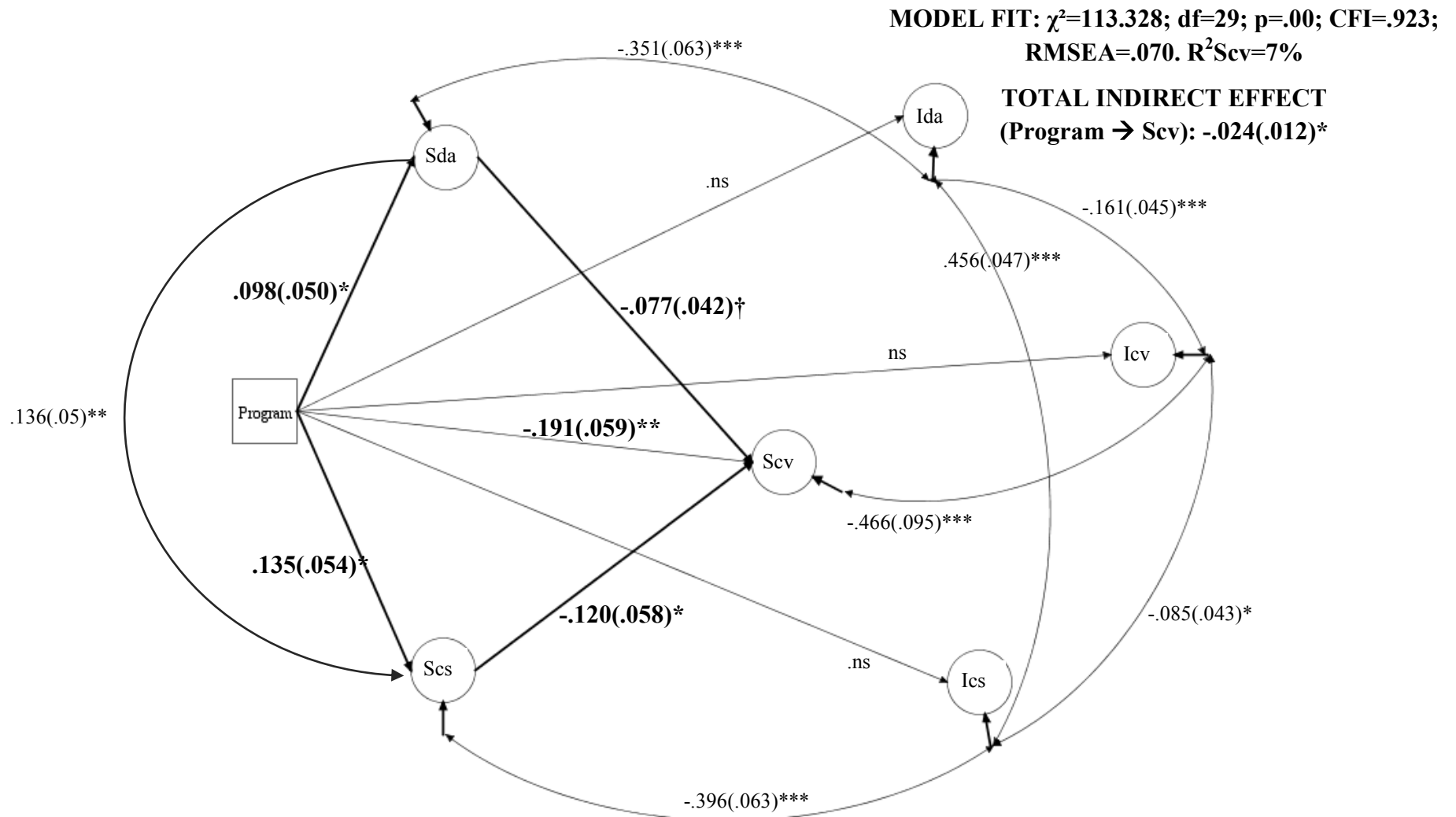
**Figure 16 Final mediational Model: direct and indirect effects of the Program on cybervictimization.**
For the readability of the figure only the paths between latent variables and the independent variable are shown. The path coefficients and standard errors (in brackets) are standardized estimates (†for p<.10; * for p≤.05; ** for p≤.01; *** for p≤.001).

## 5. DISCUSSION AND CONCLUSION

The awareness that a program "works" can be considered the first essential step in the evaluation of its efficacy. Being conscious of *how* it works can be a step ahead in research for two main reasons. Firstly, it can confirm whether the focus on specific processes was appropriate; failing this, we can improve ours models by modifying the focus and deleting or adding components (Eisner & Malti, 2012). Secondly it can extend the knowledge on theoretical aspects of the research (Perren et al., 2012). The virtuous circle between practice and theory needs to be informed by research on processes influenced by the intervention programs. For those reasons, the aim of the present study was to analyse the mediational mechanisms through which the *Noncadiamointrappola!* program 3rd Edition was efficacious in reducing cybervictimization.

Starting from the results of the previous edition (Palladino et al., 2012) and other research findings (Machmutow et al., 2012; Perren et al., 2012; Slonje et al., 2013; Tenenbaum et al., 2011), we modified some specific aspects of the program. Namely, we improved the attention on coping strategies to deal with bullying and cyberbullying while we created activities designed to enhance empathy.

We hypothesized that a higher use of adaptive coping strategies in cyberbullying, such as seeking support, can help cybervictims to stop their involvement in this phenomenon. Comparing the experimental and the control group, we found that the program predicted the change over time in seeking support, both on informational and instrumental aspects (distal advice) and on the more emotional way of getting help from people (close support). Specifically, we found that the use of those coping strategies for cyberbullying incidents did not change during the first year of high school in the control group; conversely, in the experimental group, we found a significant increase over time both for distal advice and close support. Although the literature is consistent in stating that, usually, asking for support and help, especially from adults, it is not so common (Aricak et al., 2008; Dehue et al., 2008; Dooley et al., 2010; Juvonen & Gross, 2008; Kanetsuna et al., 2006; Kowalski et al., 2008; Machmutow et al., 2012; Slonje et al., 2013; Smith et al., 2008; Völlink et al., 2013), our program was able to increase the use of this coping strategy. Considering the results of the previous edition (Palladino et al., 2012), this means that a specific program that focuses on those mechanisms can enhance the possibility of using adaptive coping strategies.

The subsequent step was to determine whether those coping strategies were also successful in reducing cyberbullying incidents. We tested both mediation models with the two coping

strategies as separate mediators of the program efficacy in reducing cybervictimization and a final comprehensive model including both mediators simultaneously. As for the first two separate models, we found that the program had significant indirect effects, through distal advice and close support, in reducing cybervictimization. Conversely, when we analyzed the comprehensive model we found that the total indirect effect is still significant but that the two indirect paths are only marginally significant. We can interpret those results directing more attention towards the general strategy of seeking social support. It can be focus on both instrumental and emotional aspects; distal advice and close support are strictly related theoretically and empirically thinking (Machmutow et al., 2012; Sticca et al., 2013). Support seeking may be defined as both problem and emotion focused (Parris et al., 2011; Skinner et al., 2003; Tenenbaum et al., 2011). In our study, we focused on both aspects. While distal advice is referred to more as asking for help from an agentic other (usually adults), close support is more related to the emotional aspects of getting help, particularly from peers. While being mindful of the inconsistent results pertaining to seeking social support in the 2$^{nd}$ Edition (Palladino et al., 2012), we changed some aspects in the 3$^{rd}$ Edition of the program, working indirectly and in parallel on instrumental/informational and emotional aspects of this coping strategy. Specifically, we tried to improve the involvement of teachers, their availability for students on this aspects and their knowledge about bullying phenomena. Concurrently, we scheduled a specific meeting with a police psychologist with the aim of reducing the perceived distance between authorities and the students. Finally, it was possible for anyone to discretely and anonymously seek help from a psychologist via the program's website. Looking at the close support factor, many activities of the program were devoted to working intensively on individual processes (e.g., empathy) that can enhance the possibility of changing one's (class-school) context in a positive way. For both aspects – instrumental/informational and emotional - the general aim of the program was to create a supportive context able to answer properly to the victims' needs. This was done both because bullying and cyberbullying are social phenomena (Salmivalli, 2010) and because we wanted to enable victims to trust other people in their social context (Hinduja & Patchin, 2008; Smith et al. 2008). The importance of encouraging youth to develop and effectively use peer support networks as part of bullying intervention programs is well documented (Davidson & Demaray, 2007; Holt & Espelage, 2007). In a qualitative study (Tenenbaum et al., 2011) victims reported that seeking social support and advice helped them to learn different ways of addressing their bullies as well as providing them with positive feedback and support from trusted peers and adults. Looking at our results, both instrumental/informational and

emotional aspects of seeking support likely need to be kept in consideration. Working on both could enhance the possibility for victims to use more adaptive coping strategy and, in turn, to deal with cyberbullying incidents in the best way and, finally, reducing cybervictimization. Previous research shows that emotion-focused coping strategies seem to not directly eliminate bullying (Tenenbaum et al., 2011); it is likely that these strategies allowed victims to reduce stress and handle the situation more skilfully. We know that *Noncadiamointrappola!* program was efficacious in reducing internalizing symptoms[19] through reducing cybervictimization. The results of the present study can help us to better explain this finding. There is some evidence that different forms of support can minimize the negative impact of traditional victimization on psychological well-being (Davidson & Demaray, 2007; Kochel, Ladd, & Rudolph, 2012). In a study on cyberbullying (Machmutow et al., 2012), seeking support from peers and family showed a significant buffering effect: cybervictims who recommended seeking close support showed lower levels of depressive symptoms. It can be argue that this could be the specific mediation process in which *Noncadiamointrappola!* program was able to reduce internalizing symptoms. Further studies and analyses are needed in order to empirically support this reasoning.

An important aspect of ours results should be discussed in-depth. Although we found significant indirect effects in all mediation models, the direct effect from the program to cybervictimization still remained significant. In other words, the decrease in cybervictimization is not completely accounted by the analyzed processes (distal advice and close support coping strategies). We found a partial mediated model and this is not a surprising result: other important coping strategies, not analyzed, could be involved. Tenenbaum and colleagues (2011) found that victims implemented multiple coping strategies simultaneously. For instance, technical coping strategies such as blocking people online or changing one's password, username, or mobile phone number are specific for the cyber context and it is often reported by students (Aricak et al., 2008; Hinduja & Patchin, 2008; Kowalski et al., 2008; Slonje et al., 2013). During each of the program's steps, those strategies were raised, discussed, and often selected during the peer-led activities as the best response. Unfortunately,  the scale used was still in progress, and the subscale about technical coping strategies was developed only in the validation steps that occurred subsequent to data collection (Sticca et al., 2013). At the same time, the program is considerably complex, and other processes most certainly played a role in its efficacy. For instance, we worked intensively on the roles and responsibilities of the people not directly involved (i.e.,

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[19] See the third chapter of the present dissertation

bystanders) in the bullying phenomena and this may be another indirect mediation factors to test in future studies. At the same time, we should consider the hypothesis that the program influenced the bullies and the cyberbullies directly or indirectly through other processes (e.g., empathy) and, in turn, cybervictimization was decreased. Given the complexity of the phenomena of interest and the complementary complexity of the program, we can hypothesize that the interplay between each of the outlined roles, and between individual and contextual processes, contributed to the decrease in cybervictimization. This research served as a first step towards understanding these complex dynamics, and further studies are needed to explore other important mediational mechanisms involved in the efficacy of the program. Better knowing the mechanisms responsible for the change in the outcome variables can help in defining the most appropriate components of a program. This knowledge can inform the choices about which processes to target within a program and, ultimately, we can identify a program as being efficacious as is possible given a bare minimal number of elements upon which to focus. Once we come to understand the principles of why some interventions work, we can make progress in designing more specific and tailored prevention approaches (Eisner & Malti, 2012).

It is often claimed that little is known about the active components that make a preventive intervention efficacious (Flay et al., 2005), especially in the realm of antibullying interventions (Ttofi & Farrington, 2011). A better understanding of the active components of preventive interventions is essential for further progress. The present work is in line with other studies and attempted to highlight *why* a program (i.e. *Noncadiamointrappola!* 3rd Edition) was efficacious. The analyses of mechanisms are a step toward an evidence-based research approach. At the same time, other research approaches will help to fill in the gaps left by the current studies (Eisner & Malti, 2012; Smith et al., 2012). For instance, rather than randomly allocating participants to whole packages of interventions, future research may isolate specific mechanisms on the basis of prior findings and theoretical considerations, thus promising elements of an intervention whose effects can then be examined. To the extent that innovative research may identify the active building blocks of bullying prevention activities, future research could help to progressively tailor more effective interventions to specific contexts (e.g., geographies, grades, demographic compositions, etc.). Future replication of *Noncadiamointrappola!* program 3rd Edition could address this claimed approach, although it could be considered a quite expensive experimental design in terms of time and resources required.

Another limitation of this study is related to the absence of analyses on gender. Preliminary analyses did not reveal significant differences but, at the same time, we cannot test if the processes are completely the same across genders. Despite previous findings suggesting that females are more likely to use coping strategies related to social support (Davidson & Demaray, 2007), the complexity of the models and the number of participants did not allow us to perform specific analyses on this topic. Further studies should address this point more thoroughly.

# CHAPTER V

# GENERAL CONCLUSIONS AND DISCUSSION

The general aim of the present dissertation was to evaluate the antibullying and anti-cyberbullying *Noncadiamointrappola!* program 3$^{rd}$ Edition by adopting an *evidence based approach* in analyzing the aspects related to the efficacy of the intervention.

The Society for Prevention Research established standards (Flay et al., 2005) for identifying an efficacious intervention: (1) it should have been tested in at least two rigorous trials that (2) involved defined samples from defined populations, (3) used psychometrically sound measures and data collection procedures; (4) analyzed data with rigorous statistical approaches; (5) showed consistent positive effects (without serious iatrogenic effects); and (6) reported at least one significant long-term follow-up.

The three central chapters of the present dissertation covered three main issues that arose from those standards:

- − Measurement of the cyberbullying construct;
- − Efficacy of the *Noncadiamointrappola!* program in reducing victimization, bullying, cybervictimization, cyberbullying and internalizing symptoms;
- − Mediational mechanisms involved in the explanation of the efficacy of the program in reducing cybervictimization.

Specifically, in the second chapter we analyzed the psychometric properties of a revised instrument (Florence Cyberbullying and Cybervictimization Scales- FCBVSs) devoted to measuring cyberbullying and cybervictimization constructs. Creating a psychometrically validated measure of the constructs can be considered our starting point in evaluating the efficacy of intervention. Using psychometrically sound measures is one of the standards needed for claiming that a program is evidence-based (point 3).

The analyses conducted showed good indication about both the validity (construct, concurrent and convergent) and reliability (internal consistency and test-retest) of the scales. The best final CFA models, invariant across genders, were based on four factors covering four types of behaviour and describing different attacks made by peers in the cyber context: written-verbal, visual, impersonation, and exclusion. The final models cover the same types of attack for victims and perpetrators. The second order CFA confirmed that a "global", second-order measure of cyberbullying and cybervictimization fits well with data.

We used those measures in the two subsequent studies. In Chapter 3, we evaluated the effects of the *Noncadiamointrappola!* program in two quasi-experimental trials that involved different samples. The aim was to understand if, and the extent to which, the *Noncadiamointrappola!* program 3$^{rd}$ Edition was able to reduce the rates of bullying and cyberbullying phenomena and internalizing symptoms in victims and cybervictims. We analysed the efficacy of the program trying to adopt all the standards of evidence in our research design (Flay et al., 2005). We tested the program in two rigorous trials (point 1) that involved students attending the first year of high school in different areas of Tuscany (point 2). We used the better data collection procedures that were available in our context (point 3). Data were analyzed with rigorous statistical approaches (point 4) and we found consistent positive effects on the target variables (victimization, bullying, cybervictimization and cyberbullying). The decrease in all the variables is stable after six months: we found significant long-term effects at the follow-up (point 5). Besides, we found that the efficacy of the program in reducing face-to-face and cyber- victimization had a buffering effect on internalizing symptoms.

Having verified the efficacy of the program, the subsequent step was devoted to analyze the mediational mechanisms that may explain the efficacy of the program in reducing cybervictimization. We found that participating at the program predicted an increase over time in seeking support, both on informational and instrumental aspects (distal advice) and on the more emotional way of getting help from people (close support). The program had significant indirect effects, through distal advice and close support, in reducing cybervictimization.

The awareness that a program *works* can be considered the first essential step in the evaluation of its efficacy. Being conscious of *how* it works is definitely a step ahead in evidence-based research since it gives suggestions on possible mechanisms responsible.

At the end of the present dissertation, we want to discuss cross-studies strengths, limitations and implication for future studies, in addition to the study-specific points specified in the three central chapters.

## 1. Dissertation strengths and contributions to the literature

The present dissertation contributes in many ways both to the research literature on bullying and cyberbullying phenomena and on evidence based prevention research. At the same time, it can be viewed as a bridge between basic research and the applied settings; it could be a step ahead in the way for a sustainable cooperation between researchers, policy makers, and practitioners in the framework of evidence-based interventions (Spiel, Salmivalli, & Smith, 2011; Spiel, Wagner, & Strohmeier, 2012; Spiel & Strohmeier, 2011, 2012).

Evidence-based policy and practice can be defined as an approach that helps people in making well-informed decisions about policies, programs, and projects by placing the best available evidence from research in the core of policy development and implementation (Nutley, Walter, & Davies, 2007). Standards for research leading to evidence-based practice have been defined (Flay et al., 2005) to assist practitioners, policy makers, and administrators in determining which interventions are efficacious, effective, and ready for dissemination. In evaluating the efficacy of the *Noncadiamointrappola!* program, we strictly followed those standards trying to build a shared ground for research and practice that could have been an opportunity for the development of both research and practice (Eisner & Malti, 2012). We tried to respond to the increased request for an evidence-based framework that can inform interventions and policies against bullying (Eisner & Malti, 2012; Ttofi & Farrington, 2010). We want to remember that the tracked way is time consuming and requires considerable commitment and resources. The *Noncadiamointrappola!* program was developed since 2008 along different editions and trial replications (Menesini, Nocentini, & Palladino, 2012; Menesini & Nocentini, 2012; Palladino et al., 2012). Now, the final 3$^{rd}$ edition can be demonstrably declared efficacious and could be ready to be disseminated to real-life settings.

In parallel to all these aspects, our work gave some insights for advancement in research literature on bullying and cyberbullying in four main areas: theoretical and practical overlap between the two constructs, measurement of the constructs, efficacy of coping strategies in cyberbullying and efficacy of peer led-models in general.

THE OVERLAP BETWEEN BULLYING AND CYBERBULLYING CONSTRUCT

Some school-based programs devoted to counteracting bullying have also found parallel effects on cyberbullying (Gradinger, 2013; Williford et al., 2013). However, in looking at the effects size and at the context peculiarities, several researchers (Slonje et al., 2013; Williford et al., 2013) have pointed out that school-based antibullying interventions may need to include cyberbullying as an equally important topic. At the same time, recently developed programs have focused mainly on cyberbullying, forgetting face-to-face context (del Rey-Alamillo et al., 2012; Ortega-Ruiz et al., 2012; Wölfer et al., 2013). Looking at the high rates of prevalence of bullying (Currie et al., 2012), at the co-occurrence of the phenomena (Gradinger, Strohmeier, & Spiel, 2009; Kowalski & Limber, 2013) and at the theoretical overlap about some aspects of definition (Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010) a third approach appears to be more promising. The *Noncadiamointrappola!* program is focused on both contexts of bullying and, in considering the overall results and other literature issues, it seems to be the most useful and appropriate way to counteract both phenomena. Our results on indirect mediational effects on internalizing symptoms boost this claim. The short or long term impact on the youth physical, psychological, relational and general well-being related to these problems is the driving force of the research in this area (Bauman et al., 2013; Cooper et al., 2012; Farrington et al., 2011; Garaigordobil, 2011; Gini & Pozzoli, 2009; Hinduja & Patchin, 2010; Kim & Leventhal, 2008; Reijntjes et al., 2010; Ttofi et al., 2011a; van Dam et al., 2012). We confirmed that both contexts of victimization explain the internalizing symptoms (Bonanno & Hymel, 2013; Menesini, Calussi, et al., 2012) but at the same time our results suggested that maintaining a binocular attention towards both sides of the context seems to be a better choice (Menesini, 2012; Olweus, 2012a, 2012b). We found that the program was efficacious in reducing internalizing symptoms in the experimental group mainly through the decrease in cybervictimization above and beyond the mediational effect of the decrease in victimization.

In sum, looking at the cyber context and not simply absorbing cyberbullying under the traditional bullying construct seems to be an important approach both for intervention and theoretical research (Hinduja & Patchin, 2012; Koops, 2012; Menesini, 2012; Olweus, 2012b; Smith, 2012).


MEASUREMENT OF CYBERBULLYING

The present dissertation also answered to the research's need for empirically validated and theoretically based instruments to assess cyberbullying (Berne et al., 2013). The FCBVSs

show good psychometric proprieties and, at the same time, are based on a distinction of four theoretically driven and cross-culturally tested types of behaviours (Menesini, Nocentini, Palladino, et al., 2012; Nocentini et al., 2010). The underlying approach considers cyberbullying to be a multidimensional construct (Menesini & Nocentini, 2009) that shares many aspects with traditional bullying. At the same time, we are aware that the specificities of the context can play an important role in this phenomenon. An instrument developed towards a more articulated dimensionality can lead to a better understanding of the phenomenon and to possible relations with other behaviors. For instance, the questionnaire can contribute to the debate regarding the overlap between bullying and cyberbullying (Hinduja & Patchin, 2012; Koops, 2012; Menesini, 2012; Olweus, 2012a, 2012b; Smith, 2012), addressing questions such as whether there are specific factors of bullying (e.g. physical, relational, verbal) and cyberbullying that are highly correlated, or whether there are aspects of both phenomena that are generally independent. It could also help to disentangle the issues about the additive, interactive, or synergistic effects played by the context and by the type of behaviour (Gradinger et al., 2009; Kowalski & Limber, 2013; Low & Espelage, 2013; Ortega et al., 2012). All of these issues could be analyzed while taking into account appropriate gender differences given the invariance we found among males and females.

Looking at the correlations between the cyberbullying global key question, a common way to measure the phenomenon (Menesini & Nocentini, 2009; Solberg & Olweus, 2003; Olweus, 1996) and the FCBVSs four factors, we found higher correlations between cyber written-verbal behaviours and global cyberbullying behaviors. Moving from these findings, we might argue that in the students' perception, cyberbullying is largely defined in term of written-verbal behaviors both for victims and perpetrators. Conversely, the relationship between the general key question and exclusion behaviours is rather weak if we consider the cybervictimization, while it is the strongest correlation for the perpetrators. This is a first step in a better understanding of effects in using a measurement approach based on a single item or based on scales. In general, the behaviours that are perceived and recognized as cyberbullying might not be viewed in the same way by people. This is particularly true if we consider the victims' or perpetrators' point of view. A multidimensional scale is a good tool to test empirically the relation between the two measurement approaches for bullying in the cyber context, pointing out the strengths and limitations of both (Menesini & Nocentini, 2009).

EFFECTIVENESS OF COPING STRATEGIES IN CYBERBULLYING

Another research issue was at least partially addressed by the present dissertation. In-depth knowledge about processes involved in efficacy of the program is an important contribution to the literature for three main reasons. Firstly, it is essential in order to be empirically conscious on *how* the program works (Flay et al., 2005). At the same time, it can confirm whether the focus on specific processes was appropriate; failing this, we can improve our models by modifying the focus and deleting or adding components (Eisner & Malti, 2012). Being mindful of the inconsistent results pertaining to seeking social support in the 2$^{nd}$ Edition (Palladino et al., 2012) of *Noncadiamointrappola!* program, we changed some aspects in the 3$^{rd}$ Edition by working indirectly and in parallel on instrumental/informational and emotional aspects of this coping strategy. In retrospect this was a positive choice. Lastly, an intervention study is an important method that we can use to disentangle causal mechanisms, that is, by controlling for the baseline of the target variable that is experimentally manipulated. For example, Perren et al. (2012) suggested using this method to address the question of the effectiveness of prevention strategies, either in relation to reducing risks or in relation to teaching specific response strategies. Consequently, we can also be more aware of the more effective coping strategies in combating cyberbullying occurrences or in buffering its negative effects. Although help-seeking was often recommended as the most effective coping strategy both to stop the incidents and to deal positively with its negative effects (Machmutow et al., 2012), we know that children tend not to spontaneously engage in such strategies in traditional (Tenenbaum et al., 2011) or cyber contexts alike (Aricak et al., 2008; Dehue et al., 2008; Dooley et al., 2010; Juvonen & Gross, 2008; Kanetsuna et al., 2006; Kowalski et al., 2008; Machmutow et al., 2012; Slonje et al., 2013; Smith et al., 2008; Völlink et al., 2013). In the present work, we found that adaptive coping strategies based on seeking social support both on instrumental and emotional aspects can be enhanced by the *Noncadiamointrappola!* program. Working on both aspects could increase the possibility for victims to use an adaptive coping strategy at a higher extent, to deal with cyberbullying incidents in the best way and, finally, to reducing cybervictimization.


EFFICACY OF THE PEER LED-MODELS

In the literature is still open the debate on the efficacy of a specific model used for antibullying programs, namely, the peer-led models (peer education and peer support) (Smith et al., 2012; Ttofi & Farrington, 2011, 2012). In a recent meta-analysis on effectiveness of school-based programs to reduce bullying, the authors concluded that "work with peers"

should be avoided as it is predictive of an increase in victimization (Ttofi & Farrington, 2011). Conversely, results from the 2$^{nd}$ (Palladino et al., 2012) and 3$^{rd}$ (current) Edition of the *Noncadiamointrappola!* program suggest just the opposite. It is possible that these discrepant findings were driven by the fact that "work with peers" consisted of rather different approaches, components and, at the end, completely different interventions. That is, each approach covered a wide range of peer support activities (Smith, Salmivalli, & Cowie, 2012). While the evidence is that these schemes can vary in effectiveness, many of these are perceived positively by pupils, who are aware of them as contributing to their sense of safety at school (Cowie et al., 2008; Cowie & Oztug, 2008). Peer-led methods provide training in a range of interpersonal and social skills and can educate students to take responsibility for their own actions. Many studies suggested that peer support systems and peer education can provide benefits for users of the scheme, peer supporters and schools in general (Birnbaum, Crohn, Maticka-Tyndale, & Barnett, 2010; Cowie, Naylor, Talamelli, Chauhan, & Smith, 2002; Naylor & Cowie, 1999; Menesini, & Nocentini, 2012). From the results of previous editions of *Noncadiamointrappola!* program (Menesini, Nocentini, & Palladino, 2012), we know that the role the peer educators are taking on is highly relevant within a peer-led model. If this role leads only to a process of personal change that does not involve the other students, this approach can have limited effects (Menesini & Nocentini, 2010). On the contrary, if the peer educators are supported in their capacity to promote initiatives and active participation of other students, the process of change could involve the entire class (Palladino et al., 2012). With adolescents, an approach focused on peer involvement *theoretically* appears to be relevant and suitable to be used in an anti bullying and anti cyberbullying programs (Sarbin, 1976; Ajzen, 1991; Bronfenbrenner, 1992, Bandura, 1997; Shiner, 1999; Cowie, & Wallace, 2000). Our results suggest that this is true also *empirically*.

## 2. Additional limitations amongst studies

Firstly, to define a program as evidence-based, it must match the standards about efficacy, effectiveness, and readiness for broad dissemination. The last two areas were not directly analyzed in this dissertation because they are less related to the research aspects of the current work. At the same time, we can state that the program provides manuals, appropriate training and it have been evaluated under real-world conditions; we indicated the practical importance of intervention outcome effects and we demonstrated to whom intervention findings can be

generalized. All of those aspects are related to the *effectiveness* of an evidence-based intervention (Spiel & Strohmeier, 2012). In *Noncadiamointrappola!* program 3rd Edition, the same level of implementation (fidelity) for the participants is assured by the relatively small sample involved: the same trainers delivered every step of the program and every class attended the same standardized face-to-face activities (same amount of time spent on the same topic). The online activities made by peer educators and all the other students were monitored indirectly in the post-intervention data collection through specific questions (knowledge about the website, the Facebook page, the number of "like", of registration to the forum, of visits, posts etc.). Simple preliminary analyses based on correlations did not show effects on the efficacy of the program. However, further analyses are needed in order to deepen the effects of the online activities. These were not structured in the same manner as face-to-face tasks. The online activities of the *Noncadiamointrappola!* program, which occurred after the training period, are not school-based; students devoted their free time to them. At the same time, it would be important to monitor the number of "views" of the webpage threads, such as reading posts without leaving any comments. We hypothesize they can play a role not only for fidelity (e.g. doing or not the online tasks as fidelity for the group of peer educators) but also for the efficacy itself and for spreading out effects of the program to other people not directly involved (Menesini, Palladino & Nocentini, Submitted).

Looking to another aspect of effectiveness evaluation, engagement was not distributed at the same level considering different roles and persons involved. Although we tried to have a more ecological approach in our program, the students' evaluation about their perception of the involvement of teachers, classmates, peer educators and themselves (Menesini, Palladino, & Nocentini, Submitted), revealed problematic findings. The students perceived only themselves as highly engaged in the program, whereas the level of involvement of teachers, school principals and other school personnel was quite low. Ourselves and the other people involved in delivering the program had the same feeling of the students. For instance, despite our considerable efforts to involve teachers, only a few of them participated during two meetings prepared for them and focused on bullying, ICTs, and online risks. At the same time, the research design was planned in order to collect data from teachers and principals, yet only a few of them consented to filling out our questionnaires. On one hand, this low level of whole school involvement can be viewed as a partial failure. On the other hand, considering all of those difficulties, a peer-led model appears to be more relevant to use with adolescents: their high involvement could be a key factor for our positive results.

The involvement of students' families was also difficult to address; further implementation and renovation of the *Noncadiamointrappola!* program would include this focus and try to improve teachers' and parents involvement in the program.

It has been widely recognized that randomized experiments are the "gold standard" in terms of demonstrating most convincingly whether a specific treatment has an effect on an outcome (Farrington & Welsh, 2005). While it would be expected that all prevention programs would opt to utilize randomized experiments because of the empirical advantages of this design, several difficulties did not allow us to use a randomized trial design. Added time, costs, and cooperation necessary to enable a proper randomized experiment to occur decrease the feasibility of such considerations; participants' refusal to participate as a control group is a common difficulty (Weisburd, Lum, & Petrosino, 2001) that we also encountered. The methods we used (matched control design) can be considered at least acceptable (Flay et al., 2005), considering that we checked for possible effects of the sampling method in all the analyses performed. Obviously, it would be desirable to replicate our findings in a new study that uses RCTs.

Another method design question is related to the fact that the role of evaluator and of program provider are played by the same people. This is not required specifically by the standards od evidence (Flay et al., 2005) but it is quite recommended that evaluations should be conducted as *independent* evaluations, in which the role of the evaluators and program developers and deliverers are institutionally separated (Eisner & Malti, 2012). Unfortunately, this was not possible in our case due to the additional financial costs that this would impose. This problematic point should be taken into account in future replications of the evaluation trials. While we reject the idea of possible intentional misconducts, we are aware of the potential risks for unconscious cognitive biases that could play a role in academic judgments and decision making at various stages of the research process (Eisner, 2009).

A final methodological limitation is related to the unique use of student self-report measures. The absence of teachers' evaluations was discussed in the previous paragraph. The peers' nominations were included in the questionnaire that we administered; however, we found that they were not enough valid and reliable measures in our sample since only a few students answered them, especially at the pre-intervention data collection time point. The other students refused to "give us the names".

## 3. Implication for future studies

With the evidence-based framework that we adopted, the present dissertation can be viewed as an initial step in the direction of creating evidence-based programs to counteract bullying and cyberbullying and buffering the negative short- and long- term effects that they have on youth's well-being (Flay et al., 2005; Slonje et al., 2013; Ttofi & Farrington, 2011). Our primary effort was to develop, improve and evaluate the *Noncadiamointrappola!* program (Menesini, Nocentini, & Palladino, 2012). The model can be now considered efficacious in preventing and reducing bullying and cyberbullying among high school students.

At the same time, the positive results from our work can help us to plan future studies. The third area of and evidence-based program is related to the *readiness for broad dissemination* (Flay et al., 2005). An evidence-based program should not only meet all standards for efficacious and effective interventions, but they should provide evidence of the ability to "go to scale", that means clear cost information, handbook and tools to be used in other contexts, monitoring and evaluation tools, so that adopting agencies are able to monitor/evaluate how well the intervention works in their settings. The *Noncadiamointrappola!* program meets all of these standards, and the consequent challenge could be the "rollingout" phase of the intervention. A specific future research question is related to the permanence of program effects in a large scale evaluation. Findings suggest that even evidence-based programs often fail to produce desirable effects in large field trials (Goossens & Gooren, 2012). Very little is also known about how programs can be taken to scale without losing their effectiveness. Additionally, little is known about how evidence-based programs can be taken to scale and embedded into mainstream services (Spiel & Strohmeier, 2012). All of these issues could serve to act as future areas of investigation through the roll out of *Noncadimaointrappola!* program. Looking at our evaluation results, it seems that going to scale could be a promising and interesting area of research and, at the same time, we expect that it poses significant challenges. For these stages, it is essential to improve collaboration and partnership with practitioners, policy makers, and stakeholders. Strengthening the bridge between research and all of these implementation figures is currently the most accessible way to develop an evidence-based approach to policy change (Eisner & Malti, 2013).

Despite some success in identifying effective programs, the literature is presently very limited in its understanding of the causal mechanisms that make them work. At the same time, little is known about the active components that render a preventive intervention efficacious. We worked on coping strategies (as potential mediators) and gender (as a possible moderator)

with regards the efficacy of the intervention in order to shed light on such issues. In fact, despite the interesting results that we found, we analyzed only one mechanism and one mediator that mainly play at the individual level. At the same time, only processes (coping strategies) involved in one of the outcome variables (cybervictimization) were analyzed in our analyses. Many processes that are activated by the *Noncadiamointrappola!* program are yet to be understood. Specifically, it would be interesting to analyze the effects of other mediators (mechanisms transporting the causal effect from the intervention to the outcome) and moderators (factors that are associated with variation in the achieved effect), also taking into account the complex interplay between individual and contextual levels in bullying and cyberbullying. For instance, looking at cybervictimization, other important coping strategies could be involved, such as technical coping strategies (Aricak et al., 2008; Hinduja & Patchin, 2008; Kowalski et al., 2008; Slonje et al., 2013). At the same time, other processes such as the bystander involvement and responsibility, moral disengagement, attitudes, and empathy (Pozzoli & Gini, 2010, 2013; Salmivalli et al., 1996), most certainly played a role also in program efficacy on bullying, victimization and cyberbullying. We could consider the hypothesis that the program influenced the bullies and the cyberbullies directly or indirectly through other processes (e.g., empathy) and, in turn, cybervictimization was decreased. The interplay between each of the outlined roles and between individual and contextual processes should be analyzed in order to test if it contributes to the decrease in both phenomena.

The role of the online activities and intervention components for bystanders and those involved in bullying was not thoroughly analyzed. Future studies could address different research questions on the presence of possible effects on people not directly involved in the program such as possible (only) online participants at the project (effects of online "exposure"). The amount of views received by the Noncadiamointrappola forum is quite impressive. At the same time, other in-depth analyses (such as textual analyses) could be devoted to better understand the topic of the discussions and how this activity could be helpful for those who just took part online at the project.

In other replications, or in the rolling out of the *Noncadiamointrappola!* program, it could be possible to use innovative approach of evaluation research (Eisner & Malti, 2013). Rather than allocating participants to whole packages of interventions, we could try to isolate promising elements and components on the basis of prior findings and theoretical considerations (e.g. online activities and face-to-face activities; peer-led parts of our model and adult-led parts; topic on coping strategies and empathy etc.). Randomly assigning participants to one or more of them (e.g. only face-to-face activities or only online activities

or both) could enable us to investigate the essential, synergistic or inconsequential effects the components are contributing to the efficacy of the intervention. A better understanding of the active components and processes involved in preventive interventions is essential for further progress in applied and theoretical research. Only if we understand the principles of *what, why* and *for whom* some interventions work we can make progress in designing more tailored interventions as a means of advancing our research.

# REFERENCES

Achenbach, T. M. (1991a) *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Achenbach, T. M. (1991b) *Manual for the Youth Self-Report and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Ahtola, A., Haataja, A., Kärnä, A., Poskiparta, E., & Salmivalli, C. (2012). For children only? Effects of the KiVa antibullying program on teachers. *Teaching and Teacher Education*, *28*(6), 851–859. doi:10.1016/j.tate.2012.03.006

Albiero, P., Matricardi, G., Speltri, D., & Toso, D. (2009). The assessment of empathy in adolescence: A contribution to the Italian validation of the "Basic Empathy Scale". *Journal of Adolescence*, *32*(2), 393–408. doi:10.1016/j.adolescence.2008.01.001

Amichai-Hamburger, Y., Kingsbury, M., & Schneider, B. H. (2013). Friendship: An old concept with a new meaning? *Computers in Human Behavior*, *29*(1), 33–39. doi:10.1016/j.chb.2012.05.025

Aricak, T., Siyahhan, S., Uzunhasanoglu, A., Saribeyoglu, S., Ciplak, S., Yilmaz, N., & Memmedov, C. (2008). Cyberbullying among Turkish adolescents. *Cyberpsychology & Behavior : The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, *11*(3), 253–61. doi:10.1089/cpb.2007.0016

Arseneault, L., Bowes, L., & Shakoor, S. (2010). Bullying victimization in youths and mental health problems: "much ado about nothing"? *Psychological Medicine*, *40*(5), 717–29. doi:10.1017/S0033291709991383

Baldry, A. C., & Farrington, D. P. (2007). Effectiveness of Programs to Prevent School Bullying. *Victims & Offenders*, *2*(2), 183–204. doi:10.1080/15564880701263155

Bargh, J. a, & McKenna, K. Y. a. (2004). The internet and social life. *Annual Review of Psychology*, *55*, 573–90. doi:10.1146/annurev.psych.55.090902.141922

Barlińska, J., Szuster, A., & Winiewski, M. (2013). Cyberbullying among adolescent bystanders: role of the communication medium, form of violence, and empathy. *Journal of Community & Applied Social Psychology*, *23*, 37–51. doi:10.1002/casp

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

Bauman, S., Toomey, R. B., & Walker, J. L. (2013). Associations among bullying, cyberbullying, and suicide in high school students. *Journal of Adolescence*, *36*(2), 341–50. doi:10.1016/j.adolescence.2012.12.001

Berne, S., Frisén, a., Schultze-Krumbholz, a., Scheithauer, H., Naruskov, K., Luik, P., … Zukauskiene, R. (2013). Cyberbullying assessment instruments: A systematic review. *Aggression and Violent Behavior*, *18*(2), 320–334. doi:10.1016/j.avb.2012.11.022

Birnbaum, M., Crohn, K., Maticka-Tyndale, E., & Barnett, J. P. (2010). Peer-led interventions to reduce HIV risk of youth: A review. *Evaluation and Program Planning*, *33*(2), 98–112. Retrieved from http://www.sciencedirect.com/science/article/pii/S0149718909000615

Bonanno, R. a, & Hymel, S. (2013). Cyber bullying and internalizing difficulties: above and beyond the impact of traditional forms of bullying. *Journal of Youth and Adolescence*, *42*(5), 685–97. doi:10.1007/s10964-013-9937-1

Cappadocia, M. C., Pepler, D., Cummings, J. G., & Craig, W. (2012). Individual Motivations and Characteristics Associated With Bystander Intervention During Bullying Episodes Among Children and Youth. *Canadian Journal of School Psychology*, *27*(3), 201–216. doi:10.1177/0829573512450567

Caravita, S. C. S., Di Blasio, P., & Salmivalli, C. (2009). Unique and Interactive Effects of Empathy and Social Status on Involvement in Bullying. *Social Development*, *18*(1), 140–163. doi:10.1111/j.1467-9507.2008.00465.x

Cooper, G. D., Clements, P. T., & Holt, K. E. (2012). Examining childhood bullying and adolescent suicide: implications for school nurses. *The Journal of School Nursing*, *28*(4), 275–83. doi:10.1177/1059840512438617

Cowie, H. (2000). Bystanding or standing by: Gender issues in coping with bullying in English schools. *Aggressive Behavior*, *26*(1), 85–97. doi:10.1002/(SICI)1098-2337(2000)26:1<85::AID-AB7>3.0.CO;2-5

Cowie, H., Hutson, N., Oztug, O., & Myers, C. (2008). The impact of peer support schemes on pupils' perceptions of bullying, aggression and safety at school. *Emotional and Behavioural Difficulties*, *13*(1), 63–71. doi:10.1080/13632750701814708

Cowie, H., Naylor, P., Talamelli, L., Chauhan, P., & Smith, P. K. (2002). Knowledge, use of and attitudes towards peer support: a 2-year follow-up to the Prince's Trust survey. *Journal of Adolescence*, *25*(5), 453–467. doi:10.1006/jado.2002.0498

Cowie, H., & Oztug, O. (2008). Pupils' perceptions of safety at school. *Pastoral Care in Education*, *26*(2), 59–67. doi:10.1080/02643940802062501

Davidson, L. M., & Demaray, M. K. (2007). Social support as a moderator between victimization and internalizing-externalizing distress from bullying. *School Psychology Review*, *36*(3), 383–405.

Dehue, F., Bolman, C., & Völlink, T. (2008). Cyberbullying: youngsters' experiences and parental perception. *Cyberpsychology & Behavior : The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, *11*(2), 217–23. doi:10.1089/cpb.2007.0008

Del Rey-Alamillo, R., Casas, J. A., & Ortega-Ruiz, R. (2012). The ConRed Program, an Evidence-based Practice. *Comunicar*, *20*(39), 129–138. doi:10.3916/C39-2012-03-03

Dooley, J. J., Gradinger, P., Strohmeier, D., Cross, D., & Spiel, C. (2010). Cyber-Victimisation: The Association Between Help-Seeking Behaviours and Self-Reported Emotional Symptoms in Australia and Austria. *Australian Journal of Guidance and Counselling*, *20*(2), 194–209. doi:10.1375/ajgc.20.2.194

Dooley, J. J., Pyżalski, J., & Cross, D. (2009). Cyberbullying Versus Face-to-Face Bullying. *Zeitschrift Für Psychologie / Journal of Psychology*, *217*(4), 182–188. doi:10.1027/0044-3409.217.4.182

Eisner, M. (2009). No effects in independent prevention trials: can we reject the cynical view? *Journal of Experimental Criminology*, *5*(2), 163–183. doi:10.1007/s11292-009-9071-y

Eisner, M., & Malti. (2013). *The Future of Evidence-based Bullying and Violence Prevention in Childhood and Adolescence* (p. 28). Retrieved from http://www.esf.org/fileadmin/Public_documents/Publications/violence_prevention_adol.pdf

Eisner, M., & Malti, T. (2012). The Future of Research on Evidence-based Developmental Violence Prevention in Europe–Introduction to the Focus Section. *International Journal of Conflict and Violence*, *6*(2), 166–175. Retrieved from http://ijcv.org/index.php/ijcv/article/viewArticle/319

Farmer, T. W., Estell, D. B., Leung, M.-C., Trott, H., Bishop, J., & Cairns, B. D. (2003). Individual characteristics, early adolescent peer affiliations, and school dropout: an examination of aggressive and popular group types. *Journal of School Psychology*, *41*(3), 217–232. doi:10.1016/S0022-4405(03)00046-3

Farrington, D. P., Loeber, R., Stallings, R., & Ttofi, M. M. (2011). Bullying perpetration and victimization as predictors of delinquency and depression in the Pittsburgh Youth Study. *Journal of Aggression, Conflict and Peace*, *3*(2), 74–81. doi:10.1108/17596591111132882

Farrington, D. P., & Ttofi, M. M. (2007). School-based programs to reduce bullying and victimization, (March). Retrieved from https://www.fug.no/getfile.php/1216921.1542.sbadxavcpt/campbellrapport+-+analyse+av+mobbeprogram+2010.pdf

Farrington, D. P., & Ttofi, M. M. (2011). Bullying as a predictor of offending , violence and later life outcomes, *98*, 90–98. doi:10.1002/cbm

Farrington, D. P., & Welsh, B. C. (2005). Randomized experiments in criminology: What have we learned in the last two decades? *Journal of Experimental Criminology*, *1*(1), 9–38. doi:10.1007/s11292-004-6460-0

Ferguson, C. J., Miguel, C. S., Kilburn, J. C., & Sanchez, P. (2007). The Effectiveness of School-Based Anti-Bullying Programs: A Meta-Analytic Review. *Criminal Justice Review*, *32*(4), 401–414. doi:10.1177/0734016807311712

Flaspohler, P. D., Elfstrom, J. L., Vanderzee, K. L., Sink, H. E., & Birchmeier, Z. (2009). Stand by me: The effects of peer and teacher support in mitigating the impact of bullying on quality of life. *Psychology in the Schools*, *46*(7), 636–649. doi:10.1002/pits.20404

Flay, B. R., Biglan, A., Boruch, R. F., Castro, F. G., Gottfredson, D., Kellam, S., … Ji, P. (2005). Standards of Evidence: Criteria for Efficacy, Effectiveness and Dissemination. *Prevention Science*, *6*(3), 151–175. doi:10.1007/s11121-005-5553-y

Fox, B. H., Farrington, D. P., & Ttofi, M. M. (2012). Successful bullying prevention programs: Influence of research design, implementation features, and program components. *International Journal of Conflict and Violence*, *6*(2), 273–282. Retrieved from http://ijcv.org/index.php/ijcv/article/viewArticle/245

Freis, S. D., & Gurung, R. a. R. (2013). A Facebook analysis of helping behavior in online bullying. *Psychology of Popular Media Culture*, *2*(1), 11–19. doi:10.1037/a0030239

French, D. C., & Conrad, J. (2001). School Dropout as Predicted by Peer Rejection and Antisocial Behavior. *Journal of Research on Adolescence*, *11*(3), 225–244. doi:10.1111/1532-7795.00011

Gámez-Guadix, M., Orue, I., Smith, P. K., & Calvete, E. (2013). Longitudinal and reciprocal relations of cyberbullying with depression, substance use, and problematic internet use among adolescents. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, *53*(4), 446–52. doi:10.1016/j.jadohealth.2013.03.030

Garaigordobil, M. (2011). Prevalencia y consecuencias del cyberbullying: una revisión. *International Journal of Psychology and Psychological …*, 233–254. Retrieved from http://www.sc.ehu.es/ptwgalam/art_completo/2011/IJPPT cyberbullying.pdf

Gibb, S. J., Horwood, J., & Fergusson, D. M. (2011). Bullying victimization/perpetration in childhood and later adjustment: findings from a 30 year longitudinal study. *Journal of Aggression, Conflict and Peace*, *3*(2), 82–88. doi:10.1108/17596591111132891

Gini, G., & Pozzoli, T. (2009). Association between bullying and psychosomatic problems: a meta-analysis. *Pediatrics*, *123*(3), 1059–65. doi:10.1542/peds.2008-1215

Gini, G., & Pozzoli, T. (2013). Bullied children and psychosomatic problems: a meta-analysis. *Pediatrics*, *132*(4), 720–9. doi:10.1542/peds.2013-0614

Gini, G., Pozzoli, T., Borghi, F., & Franzoni, L. (2008). The role of bystanders in students' perception of bullying and sense of safety. *Journal of School Psychology*, *46*(6), 617–38. doi:10.1016/j.jsp.2008.02.001

Goossens, F., & Gooren, E. (2012). Implementation of PATHS through dutch municipal health services: A quasi-experiment. *International Journal of Conflict and Violence*, *6*(2), 234–248. Retrieved from http://ijcv.org/index.php/ijcv/article/viewArticle/251

Gradinger, P. (2013). Prevention of Cyber bullying and Cyber victimization with the ViSC Social Competence Program: An Evaluation Study. In EADP (Ed.), *16th European Conference on Developmental Psychology* (p. 196). Lausanne. Retrieved from http://www3.unil.ch/wpmu/ecdp2013/files/2013/08/Abstract-Book-2-9-13.pdf

Gradinger, P., Strohmeier, D., & Spiel, C. (2009). Traditional Bullying and Cyberbullying. *Zeitschrift Für Psychologie / Journal of Psychology*, *217*(4), 205–213. doi:10.1027/0044-3409.217.4.205

Hinduja, S., & Patchin, J. W. (2008). Offline Consequences of Online Victimization. *Journal of School Violence*, *6*(3), 89–112. doi:10.1300/ J202v06n03_06

Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research : Official Journal of the International Academy for Suicide Research*, *14*(3), 206–21. doi:10.1080/13811118.2010.494133

Hinduja, S., & Patchin, J. W. (2012). Cyberbullying: Neither an epidemic nor a rarity. *European Journal of Developmental Psychology*, *9*(5), 539–543. doi:10.1080/17405629.2012.706448

Holt, M. K., & Espelage, D. L. (2007). Perceived Social Support among Bullies, Victims, and Bully-Victims. *Journal of Youth and Adolescence*, *36*(8), 984–994. doi:10.1007/s10964-006-9153-3

Houlston, C., Smith, P. K., & Jessel, J. (2011). The Relationship Between Use of School-Based Peer Support Initiatives and the Social and Emotional Well-Being of Bullied and Non-bullied Students. *Children & Society*, *25*(4), 293–305. doi:10.1111/j.1099-0860.2011.00376.x

Jimerson, S. R., Anderson, G. E., & Whipple, A. D. (2002). Winning the battle and losing the war: Examining the relation between grade retention and dropping out of high school. *Psychology in the Schools*, *39*(4), 441–457. doi:10.1002/pits.10046

Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, *29*(4), 589–611. doi:10.1016/j.adolescence.2005.08.010

Juvonen, J., & Gross, E. F. (2008). Extending the school grounds?--Bullying experiences in cyberspace. *The Journal of School Health*, *78*(9), 496–505. doi:10.1111/j.1746-1561.2008.00335.x

Kanetsuna, T., Smith, P. K., & Morita, Y. (2006). Coping with bullying at school: children's recommended strategies and attitudes to school€ based interventions in England and Japan. *Aggressive Behavior*, *32*(December 2004), 570–580. doi:10.1002/ab

Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Alanen, E., & Salmivalli, C. (2011). Going to scale: a nonrandomized nationwide trial of the KiVa antibullying program for

grades 1-9. *Journal of Consulting and Clinical Psychology*, *79*(6), 796–805. doi:10.1037/a0025740

Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A large-scale evaluation of the KiVa antibullying program: grades 4-6. *Child Development*, *82*(1), 311–30. doi:10.1111/j.1467-8624.2010.01557.x

Kim, Y., & Leventhal, B. (2008). Bullying and suicide. A review. *Journal of Adolescent Medicine and Health*, *20*(2), 133–54. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20482954

Kiriakidis, S. P., & Kavoura, A. (2010). Cyberbullying: a review of the literature on harassment through the Internet and other electronic means. *Family & Community Health*, *33*(2), 82–93. doi:10.1097/FCH.0b013e3181d593e4

Kochel, K. P., Ladd, G. W., & Rudolph, K. D. (2012). Longitudinal associations among youth depressive symptoms, peer victimization, and low peer acceptance: an interpersonal process perspective. *Child Development*, *83*(2), 637–50. doi:10.1111/j.1467-8624.2011.01722.x

Kokko, K., Tremblay, R. E., Lacourse, E., Nagin, D. S., & Vitaro, F. (2006). Trajectories of Prosocial Behavior and Physical Aggression in Middle Childhood: Links to Adolescent School Dropout and Physical Violence. *Journal of Research on Adolescence*, *16*(3), 403–428. doi:10.1111/j.1532-7795.2006.00500.x

Koops, W. (2012). A discussion on bullying and cyberbullying: An introduction by the editor. *European Journal of Developmental Psychology*, *9*(5), 517–519. doi:10.1080/17405629.2012.706463

Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *The Journal of Adolescent Health*, *41*(6), S22–30. doi:10.1016/j.jadohealth.2007.08.017

Kowalski, R. M., & Limber, S. P. (2013). Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, *53*(1 Suppl), S13–20. doi:10.1016/j.jadohealth.2012.09.018

Kowalski, R. M., Limber, S. P., & Agatston, P. W. (2008). *Cyberbullying: Bullying in the Digital Age* (p. 294). Malden, MA: Blackwell. Retrieved from http://eu.wiley.com/WileyCDA/WileyTitle/productCd-1444334816.html

Lazarus, R. S. (1993). Coping theory and research: past, present, and future. *Psychosom Medicine*, *55*(3), 234–247. Retrieved from http://www.psychosomaticmedicine.org/content/55/3/234.citation?related-urls=yes&legid=psychmed;55/3/234

Lazarus, R. S. (2006). Emotions and interpersonal relationships: toward a person-centered conceptualization of emotions and coping. *Journal of Personality*, *74*(1), 9–46. doi:10.1111/j.1467-6494.2005.00368.x

Lobe, B., Livingstone, S., Ólafsson, K., & Vodeb, H. (2011). *Cross-national comparison of risks and safety on the internet: initial analysis from the EU Kids Online survey of European children.* (D. D. E. K. O. EU Kids Online, Ed.). Network, London, UK: EU Kids Online Network. Retrieved from http://eprints.lse.ac.uk/39608/1/Cross-national comparison of risks and safety on the internet%28lsero%29.pdf

Low, S., & Espelage, D. (2013). Differentiating cyber bullying perpetration from non-physical bullying: Commonalities across race, individual, and family predictors. *Psychology of Violence*, *3*(1), 39–52. doi:10.1037/a0030308

Machmutow, K., Perren, S., Sticca, F., & Alsaker, F. (2012). Peer victimisation and depressive symptoms: can specific coping strategies buffer the negative impact of cybervictimisation? *Emotional and Behavioural Difficulties*, *17*(3-4), 403–420. Retrieved from doi.org/ 10.1080/ 13632752.2012.704310

MacKinnon, D. P. (2008). *Introdution to Statistical Mediation Analysis*. *Vasa*. New York: Lawrence Erlbaum Associates. Retrieved from http://medcontent.metapress.com/index/A65RM03P4874243N.pdf

Malti, T., Ribeaud, D., & Eisner, M. (2012). Effectiveness of a universal school-based social competence program: The role of child characteristics and economic factors. *International Journal of Conflict and Violence*, *6*(2), 249–259. Retrieved from http://www.ijcv.org/index.php/ijcv/article/viewArticle/271

Menesini, E. (2012). Cyberbullying: The right value of the phenomenon. Comments on the paper "Cyberbullying: An overrated phenomenon?" *European Journal of Developmental Psychology*, *9*(5), 544–552. doi:10.1080/17405629.2012.706449

Menesini, E., Calussi, P., & Nocentini, A. (2012). Cyberbullying and Traditional Bullying. In *Cyberbullying in the Global Playground* (pp. 245–262). Wiley-Blackwell. doi:10.1002/9781119954484.ch12

Menesini, E., Codecasa, E., Benelli, B., & Cowie, H. (2003). Enhancing children's responsibility to take action against bullying: Evaluation of a befriending intervention in Italian middle schools. *Aggressive Behavior*, *29*(1), 1–14. doi:10.1002/ab.80012

Menesini, E., & Nocentini, A. (2009). Cyberbullying Definition and Measurement. *Zeitschrift Für Psychologie / Journal of Psychology*, *217*(4), 230–232. doi:10.1027/0044-3409.217.4.230

Menesini, E., Nocentini, A., & Calussi, P. (2011). The measurement of cyberbullying: dimensional structure and relative item severity and discrimination. *Cyberpsychology, Behavior and Social Networking*, *14*(5), 267–74. doi:10.1089/cyber.2010.0002

Menesini, E., Nocentini, A., & Palladino, B. E. (2012). Empowering Students Against Bullying and Cyberbullying : Evaluation of an Italian Peer-led Model. *International Journal of Conflict and Violence*, *6*(2), 313–320.

Menesini, E., Nocentini, A., Palladino, B. E., Frisén, A., Berne, S., Ortega-Ruiz, R., … Smith, P. K. (2012). Cyberbullying definition among adolescents: a comparison across six

European countries. *Cyberpsychology, Behavior and Social Networking, 15*(9), 455–63. doi:10.1089/cyber.2012.0040

Menesini, E., Nocentini, A., Palladino, B. E., Scheithauer, H., Schultze-Krumbholz, A., Frisén, A., … Blaya, C. (2013). Definitions of cyberbullying. In P. K. Smith & G. Steffgen (Eds.), *Cyberbullying through the New Media: Findings from an international network* (pp. 23–36). London: Psychology Press. Retrieved from http://www.guilfordpress.co.uk/books/details/9781848722545/

Merrell, K. W., Gueldner, B. A., Ross, S. W., & Isava, D. M. (2008). How effective are school bullying intervention programs? A meta-analysis of intervention research. *School Psychology Quarterly, 23*(1), 26–42. doi:10.1037/1045-3830.23.1.26

Mishna, F., Saini, M., & Solomon, S. (2009). Ongoing and online: Children and youth's perceptions of cyber bullying. *Children and Youth Services Review, 31*(12), 1222–1228. Retrieved from http://www.sciencedirect.com/science/article/pii/S0190740909001200

Naylor, P., & Cowie, H. (1999). The effectiveness of peer support systems in challenging school bullying: the perspectives and experiences of teachers and pupils. *Journal of Adolescence, 22*(4), 467–479. Retrieved from http://www.sciencedirect.com/science/article/pii/S0140197199902415

Nocentini, A., Calmaestra, J., Schultze-Krumbholz, A., Scheithauer, H., Ortega, R., & Menesini, E. (2010). Cyberbullying: Labels, Behaviours and Definition in Three European Countries. *Australian Journal of Guidance and Counselling, 20*(2), 129–142. doi:10.1375/ajgc.20.2.129

Olweus, D. (2012a). Comments on cyberbullying article: A rejoinder. *European Journal of Developmental Psychology, 9*(5), 559–568. doi:10.1080/17405629.2012.705086

Olweus, D. (2012b). Cyberbullying: An overrated phenomenon? *European Journal of Developmental Psychology, 9*(5), 520–538. doi:10.1080/17405629.2012.682358

Ortega, R., Elipe, P., Mora-Merch, J. A., Genta, M. L., Brighi, A., Guarini, A., … Tippett, N. (2012). The Emotional Impact of Bullying and Cyberbullying on Victims: A European Cross-National Study. *Aggressive Behavior, 38*, 342–356. doi:10.1002/ab.21440

Ortega-Ruiz, R., del Rey-Alamillo, R., & Casas, J. A. (2012). Knowing, building and living together on internet and social networks: The ConRed cyberbullying prevention program. *International Journal of Conflict and Violence, 6*(2), 302–312. Retrieved from http://ijcv.org/index.php/ijcv/article/viewArticle/250

Palladino, B. E., Nocentini, A., Ciucci, E., & Menesini, E. (2011). I diversi volti del fallimento scolastico : ruolo dei predittori individuali e relazionali. *Giornale Di Psicologia Dello Sviluppo - Journal of Developmental Psychology, 98*, 95–103.

Palladino, B. E., Nocentini, A., & Menesini, E. (2011). Defi nition of cyberbullying among Italian adolescents : to what extent do criteria and type of behaviour matter ? An investigation through COST scenarios. *Giornale Di Psicologia Dello Sviluppo - Journal of Developmental Psychology, 100*, 94–103.

Palladino, B. E., Nocentini, A., & Menesini, E. (2012). Online and offline peer led models against bullying and cyberbullying. *Psicothema*, *24*(4), 634–639.

Parris, L., Varjas, K., Meyers, J., & Cutts, H. (2011). High School Students' Perceptions of Coping With Cyberbullying. *Youth & Society*, *44*(2), 284–306. doi:10.1177/0044118X11398881

Perren, S., Corcoran, L., & Cowie, H. (2012). Tackling cyberbullying: Review of empirical evidence regarding successful responses by students, parents, and schools. *International Journal of Conflict and Violence*, *6*(2), 283–292. Retrieved from http://www.ijcv.org/index.php/ijcv/article/viewArticle/244

Pieschl, S., Porsch, T., Kahl, T., & Klockenbusch, R. (2013). Relevant dimensions of cyberbullying — Results from two experimental studies. *Journal of Applied Developmental Psychology*, *34*(5), 241–252. doi:10.1016/j.appdev.2013.04.002

Pöyhönen, V., Juvonen, J., & Salmivalli, C. (2012). Standing Up for the Victim, Siding with the Bully or Standing by? Bystander Responses in Bullying Situations. *Social Development*, *21*(4), 722–741. doi:10.1111/j.1467-9507.2012.00662.x

Pozzoli, T., & Gini, G. (2010). Active defending and passive bystanding behavior in bullying: the role of personal characteristics and perceived peer pressure. *Journal of Abnormal Child Psychology*, *38*(6), 815–27. doi:10.1007/s10802-010-9399-9

Pozzoli, T., & Gini, G. (2013). Why Do Bystanders of Bullying Help or Not? A Multidimensional Model. *The Journal of Early Adolescence*, *33*(3), 315–340. doi:10.1177/0272431612440172

Reijntjes, A., Kamphuis, J. H., Prinzie, P., & Telch, M. J. (2010). Peer victimization and internalizing problems in children: a meta-analysis of longitudinal studies. *Child Abuse & Neglect*, *34*(4), 244–52. doi:10.1016/j.chiabu.2009.07.009

Rigby, K. (2000). Effects of peer victimization in schools and perceived social support on adolescent well-being. *Journal of Adolescence*, *23*(1), 57–68. Retrieved from http://www.sciencedirect.com/science/article/pii/S0140197199902890

Rigby, K., & Smith, P. K. (2011). Is school bullying really on the rise? *Social Psychology of Education*, *14*(4), 441–455. doi:10.1007/s11218-011-9158-y

Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior*, *15*(2), 112–120. doi:10.1016/j.avb.2009.08.007

Salmivalli, C., Kärnä, A., & Poskiparta, E. (2011). Counteracting bullying in Finland: The KiVa program and its effects on different forms of being bullied. *International Journal of Behavioral Development*, *35*(5), 405–411. doi:10.1177/0165025411407457

Salmivalli, C., Lagerspetz, K., Bjorkqvist, K., Osterman, K., & Kaukiainen, A. (1996). Bullying as a group process: Participant roles and their relations to social status within the group. *Aggressive Behavior*, *22*, 1–15. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/(SICI)1098-2337(1996)22:1%3C1::AID-AB1%3E3.0.CO;2-T/pdf

Salmivalli, C., & Poskiparta, E. (2012). KiVa antibullying program: Overview of evaluation studies based on a randomized controlled trial and national rollout in Finland. *International Journal of Conflict and Violence*, *6*(2), 294–302. Retrieved from http://www.ijcv.org/index.php/ijcv/article/viewArticle/247

Salmivalli, C., & Voeten, M. (2004). Connections between attitudes, group norms, and behaviour in bullying situations. *International Journal of Behavioral Development*, *28*(3), 246–258. doi:10.1080/01650250344000488

Schenk, A. M., & Fremouw, W. J. (2012). Prevalence, Psychological Impact, and Coping of Cyberbully Victims Among College Students. *Journal of School Violence*, *11*(1), 21–37. doi:10.1080/15388220.2011.630310

Schultze-Krumbholz, A., & Scheithauer, H. (2009). Social-Behavioral Correlates of Cyberbullying in a German Student Sample. *Zeitschrift Für Psychologie / Journal of Psychology*, *217*(4), 224–226. doi:10.1027/0044-3409.217.4.224

Shiner, M. (1999). Defining peer education. *Journal of Adolescence*, *22*, 555–566. Retrieved from http://www.sciencedirect.com/science/article/pii/S0140197199902488

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: a review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, *129*(2), 216–69. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12696840

Slavin, R. E. (2002). Evidence-Based Education Policies: Transforming Educational Practice and Research. *Educational Researcher*, *31*(7), 15–21. doi:10.3102/0013189X031007015

Slavin, R. E. (2008). Perspectives on Evidence-Based Research in Education--What Works? Issues in Synthesizing Educational Program Evaluations. *Educational Researcher*, *37*(1), 5–14. doi:10.3102/0013189X08314117

Slonje, R., & Smith, P. K. (2008). Cyberbullying: another main type of bullying? *Scandinavian Journal of Psychology*, *49*(2), 147–54. doi:10.1111/j.1467-9450.2007.00611.x

Slonje, R., Smith, P. K., & Frisén, A. (2013). The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior*, *29*(1), 26–32. doi:10.1016/j.chb.2012.05.024

Smith, J. D., & Schneider, B. H. (2004). The effectiveness of whole-school antibullying programs: A synthesis of evaluation research. *School Psychology Review*, *33*(4), 547–560. Retrieved from http://www.wce.wwu.edu/Depts/SPED/Forms/Kens Readings/Violence/Bullying/Bul Effectiveness of whole school antibullying programs Smith 2004.pdf

Smith, P. K. (2012). Cyberbullying: Challenges and opportunities for a research program—A response to Olweus (2012). *European Journal of Developmental Psychology*, *9*(5), 553–558. doi:10.1080/17405629.2012.689821

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: its nature and impact in secondary school pupils. *Journal of Child*

*Psychology and Psychiatry, and Allied Disciplines*, *49*(4), 376–85. doi:10.1111/j.1469-7610.2007.01846.x

Smith, P. K., Salmivalli, C., & Cowie, H. (2012). Effectiveness of school-based programs to reduce bullying: a commentary. *Journal of Experimental Criminology*, *8*(4), 433–441. doi:10.1007/s11292-012-9142-3

Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behavior*, *29*(3), 239–268. doi:10.1002/ab.10047

Spears, B., Slee, P., Owens, L., & Johnson, B. (2009). Behind the Scenes and Screens. *Zeitschrift Für Psychologie / Journal of Psychology*, *217*(4), 189–196. doi:10.1027/0044-3409.217.4.189

Spiel, C., Salmivalli, C., & Smith, P. K. (2011). Translational research: National strategies for violence prevention in school. *International Journal of Behavioral Development*, *35*(5), 381–382. doi:10.1177/0165025411407556

Spiel, C., & Strohmeier, D. (2011). National strategy for violence prevention in the Austrian public school system: Development and implementation. *International Journal of Behavioral Development*, *35*(5), 412–418. doi:10.1177/0165025411407458

Spiel, C., & Strohmeier, D. (2012). Evidence-based practice and policy: When researchers, policy makers, and practitioners learn how to work together. *European Journal of Developmental Psychology*, (March 2012), 37–41. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/17405629.2011.616776

Spiel, C., Wagner, P., & Strohmeier, D. (2012). Violence Prevention in Austrian Schools: Implementation and Evaluation of a National Strategy. *International Journal of Conflict and Violence*, *6*(2), 176–186. Retrieved from http://www.ijcv.org/index.php/ijcv/article/viewArticle/254

Sprecher, S. (2012). Finding love on the Internet. In M. A. Paludi (Ed.), *The psychology of love* (Praeger/AB., pp. 59–73). Santa Barbara, CA, US.

Stacey, E. (2009). Research into cyberbullying: Student perspectives on cybersafe learning environments. *Informatics in Education-An International Journal*, *8*(1), 115–130. Retrieved from http://www.ceeol.com/aspx/getdocument.aspx?logid=5&id=9e69da9644fe42869896b6af0556b9df

Sticca, F., & Perren, S. (2013). Is cyberbullying worse than traditional bullying? Examining the differential roles of medium, publicity, and anonymity for the perceived severity of bullying. *Journal of Youth and Adolescence*, *42*(5), 739–50. doi:10.1007/s10964-012-9867-3

Sticca, F., Perren, S., Nocentini, A., Menesini, E., Corcoran, L., & Mc Guckin, C. (2013). Coping With CyberBullying: construct validity of a new measure. In *Abstract Book 16th European Conference on Developmental Psychology - September 3-7 2013, Lausanne, Switzerland* (p. 195).

Tang, L. (2010). Development of online friendship in different social spaces. *Information, Communication & Society*, *13*(4), 615–633. doi:10.1080/13691180902998639

Tenenbaum, L. S., Varjas, K., Meyers, J., & Parris, L. (2011). Coping strategies and perceived effectiveness in fourth through eighth grade victims of bullying. *School Psychology International*, *32*(3), 263–287. doi:10.1177/0143034311402309

Tokunaga, R. S. (2010). Following you home from school: A critical review and synthesis of research on cyberbullying victimization. *Computers in Human Behavior*, *26*(3), 277–287. doi:10.1016/j.chb.2009.11.014

Ttofi, M. M., & Farrington, D. P. (2010). School bullying: Risk factors, theories and interventions. In *Handbook of Crime. Cullompton, Devon: Willan* (pp. 427–457). Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:School+bullying+:+risk+factors+,+theories+and+interventions#0

Ttofi, M. M., & Farrington, D. P. (2011). Effectiveness of school-based programs to reduce bullying: a systematic and meta-analytic review. *Journal of Experimental Criminology*, *7*, 27–56. doi:10.1007/s11292-010-9109-1

Ttofi, M. M., & Farrington, D. P. (2012). Bullying prevention programs: the importance of peer intervention, disciplinary methods and age variations. *Journal of Experimental Criminology*, *8*(4), 443–462. doi:10.1007/s11292-012-9161-0

Ttofi, M. M., Farrington, D. P., Lösel, F., & Loeber, R. (2011a). Do the victims of school bullies tend to become depressed later in life? A systematic review and meta-analysis of longitudinal studies. *Journal of Aggression, Conflict and Peace*, *3*(2), 63–73. doi:10.1108/17596591111132873

Ttofi, M. M., Farrington, D. P., Lösel, F., & Loeber, R. (2011b). The predictive effi ciency of school bullying versus later offending : A systematic / meta-analytic review of longitudinal studies, *89*, 80–89. doi:10.1002/cbm

Turner, G., & Shepherd, J. (1999). A method in search of a theory: peer education and health promotion. *Health Education Research*, *14*(2), 235–47. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10387503

Van Dam, D. S., van der Ven, E., Velthorst, E., Selten, J. P., Morgan, C., & de Haan, L. (2012). Childhood bullying and the association with psychosis in non-clinical and clinical samples: a review and meta-analysis. *Psychological Medicine*, *42*(12), 2463–74. doi:10.1017/S0033291712000360

Véronneau, M., & Vitaro, F. (2007). Social Experiences with Peers and High School Graduation: A review of theoretical and empirical research. *Educational Psychology*, *27*(3), 419–445. doi:10.1080/01443410601104320

Völlink, T., Bolman, C. A. W., Dehue, F., & Niels, C. L. J. (2013). Coping with Cyberbullying: Differences Between Victims, Bully-victims and Children not Involved in Bullying. *Journal of Community & Applied Social Psychology*, *24*, 7–24. doi:10.1002/casp

Vreeman, R. C., & Carroll, A. E. (2007). A systematic review of school-based interventions to prevent bullying. *Archives of Pediatrics & Adolescent Medicine*, *161*(1), 78–88. doi:10.1001/archpedi.161.1.78

Weisburd, D., Lum, C., & Petrosino, A. (2001). Does research design affect study outcomes in criminal justice? *Annals of the American Academy of Political and Social Science*, *578*, 50–70. Retrieved from http://ann.sagepub.com/content/578/1/50.short

Willard, N. E. (2007). The authority and responsibility of school officials in responding to cyberbullying. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, *41*(6 Suppl 1), S64–5. doi:10.1016/j.jadohealth.2007.08.013

Williford, A., Boulton, A., Noland, B., Little, T. D., Kärnä, A., & Salmivalli, C. (2012a). Effects of the KiVa anti-bullying program on adolescents' depression, anxiety, and perception of peers. *Journal of Abnormal Child Psychology*, *40*(2), 289–300. doi:10.1007/s10802-011-9551-1

Williford, A., Boulton, A., Noland, B., Little, T. D., Kärnä, A., & Salmivalli, C. (2012b). Effects of the KiVa anti-bullying program on adolescents' depression, anxiety, and perception of peers. *Journal of Abnormal Child Psychology*, *40*(2), 289–300. doi:10.1007/s10802-011-9551-1

Williford, A., Elledge, L. C., Boulton, A. J., Depaolis, K. J., Little, T. D., & Salmivalli, C. (2013). Effects of the Kiva Antibullying Program on Cyberbullying and Cybervictimization Frequency Among Finnish Youth. *Journal of Clinical Child and Adolescent Psychology*, 37–41. doi:10.1080/15374416.2013.787623

Wingate, V. S., Minney, J. a., & Guadagno, R. E. (2013). Sticks and stones may break your bones, but words will always hurt you: A review of cyberbullying. *Social Influence*, *8*(2-3), 87–106. doi:10.1080/15534510.2012.730491

Wölfer, R., Schultze-Krumbholz, A., Zagorscak, P., Jäkel, A., Göbel, K., & Scheithauer, H. (2013). Prevention 2.0: Targeting Cyberbullying @ School. *Prevention Science : The Official Journal of the Society for Prevention Research*. doi:10.1007/s11121-013-0438-y

Ybarra, M. L. (2004). Linkages between depressive symptomatology and Internet harassment among young regular Internet users. *Cyberpsychology & Behavior : The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, *7*(2), 247–57. doi:10.1089/109493104323024500

Ybarra, M. L., & Mitchell, K. J. (2004). Online aggressor/targets, aggressors, and targets: a comparison of associated youth characteristics. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *45*(7), 1308–16. doi:10.1111/j.1469-7610.2004.00328.x

# APPENDIX 1

**VALIDITY AND RELIABILITY OF THE FLORENCE BULLYING AND VICTIMIZATION SCALES (FBVS)**

In order to have a valid and reliable measure of bullying and victimization, we created a revised version of the Bullying and Victimization Scales (Menesini, Calussi & Nocentini, 2012). They consisted of two scales, one for perpetration and one for victimization. Each scale was composed of 14 items, asking how often respondents had experienced particular behaviours during the past couple of months. Each item was evaluated on a 5-point scale: 1="never", 2="once or twice", 3="one or two times at month", 4="once a week", 5="several times a week".

The scales were revised with a classification of the bullying behaviours based on: 1) Physical behaviours; 2) Verbal behaviours; 3) Indirect-Relational behaviours. We tested the factorial structure and the reliability in a sample of 778 adolescents (56.6 % males), enrolled in 9th, 10th 11th grades of high schools in Tuscany, Italy, ranging in age from 13 to 19 years. The mean age was 14.93 years (SD=1.15) and 35.8 % students attended Lyceum, another 20.0 % students attended Technical Institutes, and 44.2% students attended Vocational Schools. The schools were selected using a self- selection inclusion in the study and the students answered to the questionnaire during the pre-test measure of the *Noncadiamointrappola!* program 3rd Edition in fall 2012 (November-beginning of December).  First, we tested three different dimensional models using CFA:

(a.) 3 factors models, distinguishing the three type of behaviours

(b.) second order factor models (bullying/ victimization)

(c.) mono- dimensional models;

All models were evaluated by means of the following overall indices: the chi-square ($\chi^2$) statistic, the root-mean-squared error of approximation (RMSEA), and the comparative fit index (CFI). Recommended cut-off points for these measures are 0.08 (Brown, Cudek, 1993) or 0.06 (Hu, Bentler, 1998) for RMSEA and 0.90 or 0.95 for CFI (Bollen, 1989).

Given the non-normality of the items distribution, missing data MLR estimator is used to obtain robust estimates (Yuan & Bentler, 2000). All analyses were conducted using Mplus 5 (Muthén & Muthén, 1998-2007).

In Table 20, descriptive statistics for items of both bullying and victimization scales are reported. Looking at the frequencies of responding in the affirmative relative to "never" responses (presence vs. absence of the behaviours in the sample), we found low frequencies for items "k" and "l" both for bullying and for victimization. We decided to exclude those items from the analysis. Item "i" is specifically definite for specific kind of population (such as foreign people, with a different culture, different religions, different somatic features, or people with disabilities). In our sample, 88% of the students were Italian and, for this reason, we excluded them. Item "e" is also difficult to categorize in a single factor. The role of the concept of "threatening" has been ambiguous in literature because it is a verbal behaviour, yet it often overlaps with physical attack and psychological attack. For those reasons we excluded these items from the analyses.

Therefore, all the models tested have a starting configuration based on 10 items:

(a.) Physical behaviours items: a, g, j, m.
(b.) Verbal behaviours items: b, c, n
(c.) Indirect-Relational behaviours items: d, f, h.

| | VICTIMIZATION | N | Mean | SD | SUB-SCALE | | BULLYING | N | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| V_a | I have been beaten up. | 761 | 1.07 | .37 | **PHYSICAL** | B_a | I beat somebody up. | 758 | 1.24 | .62 |
| V_b | I have been called names. | 762 | 1.64 | 1.03 | **VERBAL** | B_b | I called someone names. | 759 | 1.67 | .99 |
| V_c | I have been teased. | 765 | 1.76 | 1.06 | **VERBAL** | B_c | Teased someone | 759 | 1.75 | .97 |
| V_d | I have been ignored by my schoolmates. | 763 | 1.37 | .80 | **INDIRECT-RELATIONAL** | B_d | I ignored a schoolmate | 758 | 1.58 | .94 |
| V_e | I have been threatened. | 762 | 1.15 | .54 | **VERBAL** | B_e | I threatened someone | 755 | 1.15 | .58 |
| V_f | I have been excluded from activities. | 764 | 1.15 | .49 | **INDIRECT-RELATIONAL** | B_f | I excluded someone from activities. | 756 | 1.16 | .55 |
| V_g | I have been punched and kicked | 763 | 1.05 | .30 | **PHYSICAL** | B_g | I punched and kicked someone. | 756 | 1.18 | .60 |
| V_h | Rumours about me have been spread | 764 | 1.44 | .88 | **INDIRECT-RELATIONAL** | B_h | I spread rumours out about someone. | 756 | 1.12 | .42 |
| V_i | I have been teased because of my skin colour or my culture | 761 | 1.09 | .45 | **VERBAL** | B_i | I teased someone because of his skin colour or his culture. | 752 | 1.09 | .41 |
| V_j | My personal belongings have been stolen or damaged. | 765 | 1.24 | .58 | **PHYSICAL** | B_j | I stole or damaged someone else personal belongings. | 754 | 1.09 | .44 |
| V_k | I have been teased because of my handicap. | 759 | 1.04 | .28 | **VERBAL** | B_k | I teased someone for his handicap. | 753 | 1.05 | .34 |
| V_l | I have been teased because of my religion. | 760 | 1.03 | .27 | **VERBAL** | B_l | I teased someone because his religion. | 756 | 1.03 | .27 |
| V_m | I have been pushed and shoved. | 762 | 1.21 | .60 | **PHYSICAL** | B_m | I pushed and shoved someone. | 756 | 1.26 | .69 |
| V_n | I have been called gay or lesbian | 759 | 1.17 | .63 | **VERBAL** | B_n | I called someone gay or lesbian. | 757 | 1.39 | .95 |

**Table 20 Labels, sub-scales and descriptive statistics for items of both bullying and victimization scales.**

## Confirmatory Factor Analyses

Table 21 shows fit indices for all models tested.

The first factor (**a1**) (3 factors model, 10 items) resulted in inadequate fit indices. To improve model fit, Modification Indices suggested to relax correlations between error of items "a" and "g" (for bullying MI=77.077 and for victimization MI=62.145). Correlated error estimates did not significantly alter the measurement parameter estimates (see Byrne, Shavelson, Muthen, 1989). Since they were statistically significant and their sizes considerable (completely standardized estimates are for bullying=0.991 and for victimization=0.445), we considered important including these two parameters in the models. We have theoretical reasons that allow us to do that: the nouns used for items "g" have an overlapping meaning with the nouns use for items "a".

Models (**a2**) and II order Models (**b**) (second order factors) showed adequate fit indices with the exception of the $\chi^2$ statistic that was significant; both with significant and consistent factor loading (see Figure 17).

Conversely, mono-dimensional models (**c**) didn't showed adequate fit indices.

| | $\chi^2$ | Gl | P | CFI | RMSEA | N |
|---|---|---|---|---|---|---|
| **VICTIMIZATION** | | | | | | |
| Model V (a1) | 130.473 | 32 | 0.000 | 0.869 | 0.063 | 770 |
| Model V (a2) | 78.864 | 31 | 0.000 | 0.936 | 0.045 | |
| Model V (b) | 78.864 | 31 | 0.001 | 0.936 | 0.045 | |
| Model V (c) | 233.284 | 35 | 0.000 | 0.736 | 0.086 | |
| | | | | | | |
| **BULLYING** | | | | | | |
| Model C (a1) | 133.892 | 32 | 0.000 | 0.925 | 0.065 | 764 |
| Model C (a2) | 67.943 | 31 | 0.000 | 0.973 | 0.039 | |
| Model C (b) | 67.943 | 31 | 0.0001 | 0.973 | 0.039 | |
| Model C (c) | 303.646 | 35 | 0.000 | 0.802 | 0.100 | |

**Table 21 Fit Indices of Confirmatory Factor Analysis.**

*Note:* Model (**a1**): Three factors, 10 items (Physical: a, g, j, m; Verbal: b, c, n; Indirect-Relational: d, f, h); Model (**a2**): Same structure of model (a) but we relaxed correlations between error items a and g; Model (**b**): second order model, 10 items (bullying/ victimization); Model (**c**): mono-dimenstional model, 10 items.
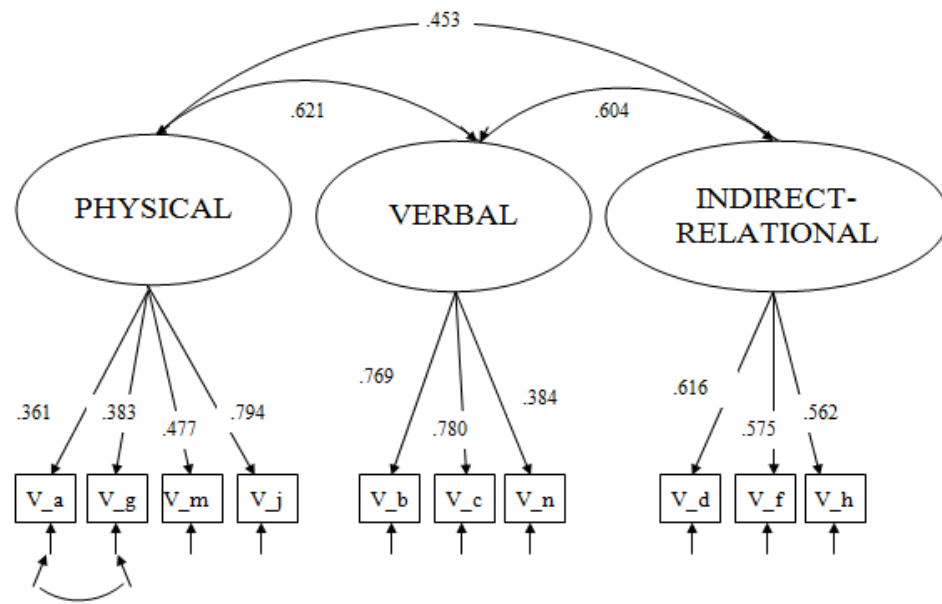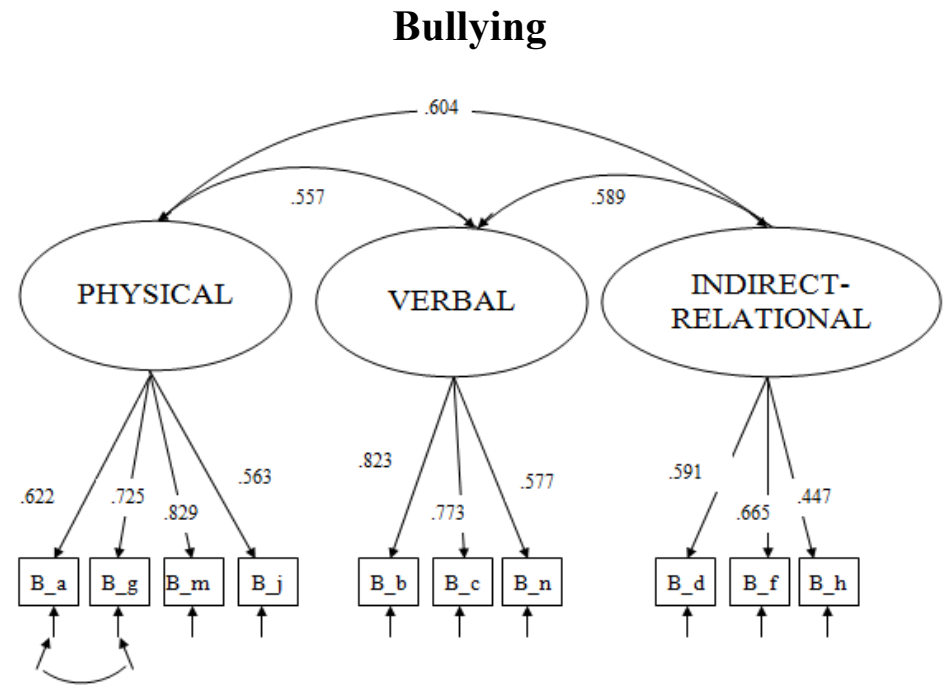
**Figure 17 Factor loadings and factors correlations of final victimization and bullying models (b).**
**All parameters are significant at p≤.001**

## Reliability

In Table 22, Cronbach's alphas coefficients are shown in the three waves of data collection (same sample- after 3 months and after 6 months). Not all the scales showed acceptable reliability coefficients in the first data collection, while all the reliability coefficients are good in the second and in the third wave.

| | VICTIMIZATION | | | BULLYING | | |
|---|---|---|---|---|---|---|
| | 1st wave | 2nd wave | 3rd wave | 1st wave | 2nd wave | 3rd wave |
| **PHYSICAL** | .59 | .69 | .65 | .79 | .82 | .83 |
| **VERBAL** | .66 | .66 | .75 | .76 | .82 | .75 |
| **INDIRECT-RELATIONAL** | .60 | .68 | .64 | .57 | .66 | .60 |
| **II ORDER FACTOR** | .74 | .78 | .80 | .83 | .87 | .85 |

**Table 22 Cronbach's Alphas for the first order factors and for the second order factor in the three waves data collection.**

## Conclusion

For both bullying and victimization scales, the better final model resulting by the CFA is a 3 factors model on 10 items. The factors are: PHYSICAL (4 items), VERBAL (3 items) and INDIRECT-RELATIONAL (3 items). They showed also ad adequate reliability coefficients excepting for physical victimization and indirect-relational bullying at the first wave data collection. Although physical victimization and indirect/relational bullying are not sufficient, they showed sufficient alphas in the 2nd and 3rd wave data collection on same sample. The second order CFA confirmed that a "global" measure of bullying and victimization fit in a good way with data. The second order scales showed good reliability in all waves of data collection.

# APPENDIX 2

**DESCRIPTIVE STATISTICS AND CORRELATIONS: CHAPTER II AND III**

| | | PRE MEASURE | | | MIDDLE MEASURE | | | POST MEASURE | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Mean** | **SD** | **N** | **Mean** | **SD** | **N** | **Mean** | **SD** | **N** |
| **Victimization** | Experimental Group | 0,109 | 0,114 | 389 | 0,091 | 0,110 | 372 | 0,059 | 0,086 | 338 |
| | Control Group | 0,093 | 0,098 | 130 | 0,106 | 0,126 | 141 | 0,090 | 0,121 | 112 |
| **Bullying** | Experimental Group | 0,117 | 0,127 | 387 | 0,113 | 0,145 | 368 | 0,083 | 0,105 | 330 |
| | Control Group | 0,105 | 0,111 | 131 | 0,122 | 0,118 | 138 | 0,111 | 0,136 | 110 |
| **Cybervictimization** | Experimental Group | 0,044 | 0,079 | 378 | 0,039 | 0,092 | 363 | 0,015 | 0,041 | 323 |
| | Control Group | 0,041 | 0,068 | 129 | 0,043 | 0,099 | 141 | 0,043 | 0,111 | 108 |
| **Cyberbullying** | Experimental Group | 0,033 | 0,073 | 378 | 0,030 | 0,078 | 353 | 0,013 | 0,036 | 325 |
| | Control Group | 0,031 | 0,066 | 126 | 0,037 | 0,103 | 138 | 0,047 | 0,114 | 108 |
| **Internalizing Symptoms** | Experimental Group | 11.86 | 9.38 | 373 | 11.24 | 9.68 | 345 | 10.03 | 8.37 | 312 |
| | Control Group | 12.59 | 8.87 | 125 | 12.21 | 10.59 | 136 | 11.82 | 11.82 | 108 |

**Table 23 Descriptive statistics (means, SD and N size) in the three waves of data collection for: bullying, victimization, cyberbullying and cybervictimization - First quasi-experimental trial.**

| | VICTIMIZATION | | | CYBERVICTIMIZATION | | | INTERNALIZING SYMPTOMS | | |
|---|---|---|---|---|---|---|---|---|---|
| | **1. Pre** | **2. Middle** | **3. Post** | **4. Pre** | **5. Middle** | **6. Post** | **7. Pre** | **8. Middle** | **9. Post** |
| **1.** | 1 | .606 | .322 | .173 | .113 | .043 | .086 | .143 | .175 |
| **2.** | .433 | 1 | .604 | .227 | .133 | .186 | .219 | .237 | .149 |
| **3.** | .374 | .485 | 1 | .319 | .504 | .486 | .342 | .341 | .326 |
| **4.** | .378 | .351 | .254 | 1 | .379 | .425 | .335 | .247 | .147 |
| **5.** | .156 | .385 | .232 | .330 | 1 | .649 | .399 | .254 | .271 |
| **6.** | .116 | .151 | .207 | .373 | .464 | 1 | .338 | .329 | .449 |
| **7.** | .393 | .234 | .228 | .459 | .303 | .151 | 1 | .772 | .628 |
| **8.** | .312 | .295 | .242 | .408 | .482 | .308 | .685 | 1 | .651 |
| **9.** | .086 | .212 | .168 | .192 | .279 | .224 | .376 | .548 | 1 |

**Table 24 Correlations between victimization, cybervictimization and internalizing symptoms – First quasi-experimental trial.**
*Note*: Data for control group appears above the diagonal and data for experimental group appears below the diagonal.

|  |  | PRE MEASURE | | | MIDDLE MEASURE | | | POST MEASURE | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Mean** | **SD** | **N** | **Mean** | **SD** | **N** | **Mean** | **SD** | **N** |
| **Distal Advice** | Experimental Group | 2.58 | .95 | 374 | 2.59 | .90 | 353 | 2.75 | .91 | 312 |
|  | Control Group | 2.48 | .90 | 125 | 2.44 | .88 | 135 | 2.48 | .93 | 106 |
| **Close Support** | Experimental Group | 2.88 | .90 | 377 | 2.95 | .86 | 351 | 3.05 | .81 | 309 |
|  | Control Group | 2.77 | .89 | 127 | 2.80 | .93 | 130 | 2.63 | .94 | 101 |

**Table 25 Descriptive statistics (means, SD and N size) in the three waves of data collection for seeking support coping strategies: distal advice and close support - First quasi-experimental trial**

| | CYBERVICTIMIZATION | | | DISTAL ADVICE | | | CLOSE SUPPORT | | |
|---|---|---|---|---|---|---|---|---|---|
| | **1. Pre** | **2. Middle** | **3. Post** | **4. Pre** | **5. Middle** | **6. Post** | **7. Pre** | **8. Middle** | **9. Post** |
| **1.** | 1 | .285 | .373 | -.273 | -.106 | -.300 | -.073 | .085 | -.104 |
| **2.** | .303 | 1 | .631 | -.157 | -.248 | -.207 | .033 | -.137 | -.220 |
| **3.** | .448 | .459 | 1 | -.161 | -.231 | -.244 | .023 | -.027 | -.163 |
| **4.** | -.044 | -.127 | -.015 | 1 | .453 | .422 | .407 | .248 | .128 |
| **5.** | -.038 | -.026 | -.051 | .614 | 1 | .529 | .364 | .580 | .376 |
| **6.** | -.177 | -.132 | -.162 | .460 | .583 | 1 | .414 | .340 | .589 |
| **7.** | -.170 | -.260 | -.142 | .439 | .314 | .237 | 1 | .449 | .473 |
| **8.** | -.044 | -.173 | -.144 | .321 | .394 | .185 | .565 | 1 | .647 |
| **9.** | -.143 | -.011 | -.109 | .221 | .259 | .285 | .370 | .499 | 1 |

**Table 26 Correlations between cybervictimization, distal advice and close support – First quasi-experimental trial.**
*Note*: Data for control group appears above the diagonal and data for experimental group appears below the diagonal.

# APPENDIX 3

**MULTIPLE-GROUP ESTIMATED COMPONENTS OF GROWTH CURVES AND MODELS FIT: THE OUTCOME VARIABLES**

| GROUP | Mean Slope | Var. Slope | Mean Intercept | Var. Intercept | Covar. (Int and slope) | $\chi^2$ (each group) | $\chi^2$ | df [20] | p | CFI | RMSEA (90 perc. C.I.) probabability <=.05 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VICTIMIZATION** | | | | | | | | | | | |
| **CONTROL** | **-.004 (.006) ns** | .003 (.001)* | .099 (.009) *** | .012(.004)*** | -.002 (.001)  ** | 3.594 | | | | | .083 |
| **EXP.** | **-.027 (.003)\*** | .002 (.001) ** | .112 (.006) *** | .008(.001)*** | -.002 (.001)  ** | 2.566 | 6.160 | 2 | .05 | .966 | (.01-.162) .17 |
| **BULLYING** | | | | | | | | | | | |
| **CONTROL** | **.004 (.007) ns** | .006(.001)*** | .106 (.009) *** | .012(.002)*** | -.004 (.001) *** | 8.372 | | | | | .075 |
| **EXP.** | **-.016 (.004)\*** | .004(.001)*** | .120 (.007) *** | .017(.002)*** | -.005(.001)*** | 7.678 | 16.050 | 6 | .01 | .932 | (.031-.12).15 |
| **CYBERVICTIMIZATION** | | | | | | | | | | | |
| **CONTROL** | **-.001 (.005) ns** | .002 (.001) ns | .042 (.006) *** | .003 (.002) ns | .000 (.001) ns | .510 | | | | | 0 |
| **EXP.** | **-.017 (.002) \*** | .001 (.000) * | .047 (.004) *** | .004 (.001) ** | -.001 (.001) * | 3.320 | 3.829 | 4 | .43 | 1.000 | (0-.086).73 |
| **CYBER BULLYING** | | | | | | | | | | | |
| **CONTROL** | **.007 (.005) ns** | .001 (.002) ns | .031 (.005) *** | .000 (.004) ns | .001 (.003) | .048 | | | | | .028 |
| **EXP.** | **-.001 (.002) \*** | .001 (.001) ns | .035 (.004) *** | .004 (.002) * | -.001 (.001) ns | 2.403 | 2.451 | 2 | .29 | .985 | (0-.122) .52 |
| **INTERNALIZING SYMPTOMS** | | | | | | | | | | | |
| **CONTROL** | **-.254(.425) ns** | 12.142(4.84)* | 12.204(.742)*** | 78.26(8.62)*** | -9.407(4.78)* | .022 | | | | | 0 |
| **EXP.** | **-.958(.265)\*** | 20.72(4.19)*** | 11.954(.478)*** | 89.26(8.26)*** | -28.83(5.06)*** | .819 | 0.841 | 4 | .93 | 1.000 | (0-0.24).98 |

**Table 27 Multiple-group estimated components (not standardized) of growth curves and models' fit for victimization, bullying, cybervictimization, cyberbullying and internalizing symptoms –First quasi-experimental trial.**
*Note*: For all the variables N size is: Control Group=165; Experimental Group=433.

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[20] Differences in degree of freedom in models are due to fixed parameters for improving the fit of models.

# APPENDIX 4

**MULTIPLE-GROUP ESTIMATED COMPONENTS OF GROWTH CURVES AND MODELS FIT: COPING STRATEGIES**

| GROUP | Mean Slope | Var. Slope | Mean Intercept | Var. Intercept | Covar. (Int and slope) | $\chi$ (each group) | $\chi^2$ | df 21 | p | CFI | RMSEA (90 perc. C.I.) probabability <=.05 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DISTAL ADVICE** | | | | | | | | | | | |
| **CONTROL** | **-.019(.049) ns** | .040(.078) ns | 2.475 (.073)*** | .355(.142)* | .012(.090) ns | .090 | 3.616 | 2 | .16 | .995 | .053 (0-.139) .37 |
| **EXP.** | **.083(.027)**** | .092(.038)* | 2.557(.047)*** | .622(.083)*** | -.102(.047)* | .3526 | | | | | |
| **CLOSE SUPPORT** | | | | | | | | | | | |
| **CONTROL** | **-.071(.044) ns** | .048(.076) ns | 2.763(.072)*** | .297(.145)* | .068 (.086) ns | 2.050 | 2.050 | 2 | .36 | 1.000 | .009 (0-.117) .58 |
| **EXP.** | **.077(.026)**** | .108(.037)** | 2.860(.045)*** | .583(.080)*** | -.145(.046)** | 0 | | | | | |

**Table 28 Multiple-group estimated components (not standardized) of growth curves and models' fit for distal advice and close support –First quasi-experimental trial.**

*Note*: For all the variables N size is: Control Group=157; Experimental Group=422

A La Prof. e ad Annalaura

(il "we" di tutta la mia tesi)

senza il loro supporto, i consigli e l'incoraggiamento, anche e soprattutto nei momenti difficili, non solo non avrei "imparato", ma non sarei cresciuta. La voglia di conoscere è qualcosa che ti spinge ad andare avanti, ti migliora, ti rende più forte e consapevole: bene, io ho avuto la fortuna di *trovare* e *fare* la mia strada con voi;

Alle mie persone care,

che anche se non sono vicine, so che mi sostengono e sono con me. Nonostante il sacrificio di avermi avuta sempre lontana, so che siete felicemente orgogliosi di me e questo mi fa amare ancor di più la mia famiglia;

A tutti i ragazzi

in questo percorso fatto insieme, anche con fatica, il mio ruolo è stato quello di "*dare loro qualcosa*". Ad essere onesti, sono loro ad avermi regalato una cosa molto più importante: mi hanno fatto amare questo lavoro;

Alle persone che hanno condiviso con me spazio e tempo, paure e momenti belli, chiacchiere leggere e pettegolezzi tra le macchinette del caffè, la mensa e le panchine del Dipartimento: lavorare in un luogo dove hai i sorrisi delle persone, gli incoraggiamenti e la possibilità di sfogarti se qualcosa va storto, ti trasmette una bella forza. E poi ti permette di poter vedere quella stanzetta tendenzialmente triste del Laboratorio, come un bel posticino (e non "il buco" cit. Mara);

A tutti gli amici

che negli anni hanno condiviso momenti importanti della mia vita: a chi è diventato un punto di riferimento, a chi c'è sempre, a chi ora non fa più parte della mia vita, a chi vive dall'altro capo del mondo, a chi mi ha fatto impazzire, a chi è importante a prescindere da tutto il resto, a chi ha fatto con me un lungo tragitto e a chi ne ha fatto uno breve ma lasciando un segno.

Grazie per aver colorato di significato questa città e la parola "casa";

…e quindi, a trent'anni, smetto di essere una studente :)