

## Development and validation of the theory-driven School Resilience Scale for Adults: Preliminary results



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### ABSTRACT

Resilience is the ability of an individual or community to adapt to life challenges or adversities while maintaining mental health and well-being. In the multi-systemic resilience paradigm, human development and resilience is embedded in adaptive systems and in their interactions. Although the relationship between school systems and adolescents' mental wellbeing is established, there is no agreement on how to recognize and evaluate the most relevant aspects of the school community, acting at collective level, to boost positive socio-emotional and educational outcomes in children and adolescents. This study presents the development and preliminary validation of a new and theory-driven construct and instrument, the School Resilience Scale for Adults (SRS). School Resilience comprises five interrelated constructs (i.e. Positive relationships, Belonging, Inclusion, Participation, and Mental health awareness) connected theoretically to wellbeing and resilience in children and adolescents. The scale development was theory-driven, and the instrument was tested in four European counties in the frame of the UPRIGHT project (Universal Preventive Resilience Intervention Globally implemented in schools to improve and promote mental Health for Teenagers). Overall, 340 adults participated, 129 teachers and school staff, and 211 relatives of teenagers. The sample was randomly split for two studies: (1) an Exploratory Factor analysis (ESEM), and (2) Confirmatory Factor (CFA) analysis. In the exploratory analysis, Chi-Square difference test and model fit indices point towards the five-factor solution over a three-factor solution. The confirmatory study indicated that a five-factor model (RMSEA = 0.038, CFI = 0.96, TLI = 0.95, SRMR = 0.045) was slightly better than a second-order model (RMSEA = 0.046, CFI = 0.94, TLI = 0.93, SRMR = 0.05). Convergent and discriminant validities were partially demonstrated. Alpha and omega reliability coefficients verified the measurement model of the scale. The results confirmed that a multidimensional construct of School Resilience, defined as a collective resilience factor, embedded in the school staff, family members, and adolescents' interrelated systems can be characterized and measured. Further studies must determine its role in the promotion of adolescents' resilience, mental wellbeing, educational outcomes, and in their positive adaptation in challenging contexts.

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## 1. Introduction

In this research we present the development and initial validation of the School Resilience Scale (SRS) for Adults. In the frame of developmental and educational psychology, a robust body of research has demonstrated that characteristics of the school environment relate to socio-emotional and educational outcomes. Among others, the bad quality of relationships, lack of connectedness and parents' involvement, perceived insecurity, are risk conditions that precede adolescents' mental health symptoms or poor school adjustment (Aldridge & McChesney, 2018; Cohen, 2013; O'Malley, Voight, Renshaw, & Eklund, 2015; Suldo, McMahan, Chappel, & Loker, 2012). However, the characteristics of the school community that act together as protective or promotive resilience factors of adolescents' wellbeing and resilience has not been established. The construct and instrument are proposed to fill this gap in the literature. The instrument aims at evaluating five interrelated characteristics of the school environment that may foster youths' mental wellbeing in the school context.

In this study we describe the theory-driven development of the School Resilience Scale for Adults (SRS), and its pilot testing with family members, school staff, and teachers, in the frame of the UPRIGHT programme. UPRIGHT (Universal Preventive Resilience Intervention Globally implemented in schools to improve and promote mental Health for Teenagers) is a project funded by the European Union's Horizon 2020 Research and Innovation programme (ID: 754919). UPRIGHT has developed a resilience-based programme that is being implemented in five European regions: Basque Country (Spain), Trentino (Italy), Low Silesia (Poland), Denmark, and Reykjavik (Iceland). The intervention was co-designed as a whole-school approach, involving adolescents, their families and the school community (Morote et al., 2020). The UPRIGHT research project is a randomized control trial to test programme's effectiveness longitudinally for three years (Las Hayas et al., 2019). During its first eight months, UPRIGHT executed an innovative cocreation research process with more than one thousand adolescents, families, and school professionals in the five regions. In this context, the School Resilience Scale for adults (i.e. for teachers, school staff, family members or guardians) and adolescents (i.e. short version of five items) were designed, and the adult's version was tested (Morote et al., 2020)<sup>1</sup>.

In this article, we introduce the development and preliminary validation of the School Resilience Scale for Adults - designed for teachers, school professionals and family members in a European context. We present the theoretical foundations of the multidimensional construct, the procedures for the development of the scale, and the empirical results of the exploratory and confirmatory studies.

### 1.1. Theoretical background: Multisystem resilience and youths' development

Resilience has diverse definitions across fields such as ecology, economics, engineering, psychology, education, social work, and arguably, there is not an agreement among them. A synthesis of socio-ecological and multisystem theories highlight that resilience systems exhibit among others dynamism, learning, diversity, redundancy, complexity, participation, and reciprocal processes across human, built, social, and natural environments (Ungar, 2018). Human resilience is defined as the capacity of individuals or systems to adapt positively to

existing and potential challenges that threaten their function, survival, or future development (Masten, 2014; Masten & Barnes, 2018). Resilience research combines the study of (a) risk exposure, (b) protective or promotive processes, and (c) outcomes. Protective and promotive process, such as the study here, develop along life, and act within and between individual and group systems (Ungar, 2019). Usually, challenges are understood as risk or adversity. A high-risk environment is where the likelihood of adverse events' incidence is high, whereas adversity is when the hazardous events happen (Zucker, Donovan, Masten, Mattson, & Moss, 2008). In the school context, we focus on the potential insecurity experienced within the school community as a threat for youths' positive development.

Throughout human development, resilience is embedded in multiple adaptive systems and in the interactions between them (Cicchetti & Blender, 2006). Educators, parents, and other formal and informal caregivers are crucial actors of this process during childhood and adolescence (Masten & Barnes, 2018; Ungar, 2004). Developmental and educational resilience research distinguishes protective and promotive factors and processes of resilience that favor positive outcomes. In the first case, protective factors modify the negative effect of adversity on wellbeing while, in the second case, promotive factors enhance positive developmental outcomes regardless of adversity or risk (Fletcher & Sarkar, 2013; Luthar, 2006). In the school context, micro and meso systems act together to boost youth resilience. Micro systems such as individual protective factors (e.g. self-efficacy) have a clear impact on at-risk adolescents' wellbeing (Dray et al., 2017; Hjemdal, 2007), while relevant meso systems are positive relationships with family, peers, counsellors, or neighbors, and institutional conditions, such as access to counseling, financial assistance, an inclusive curriculum (McMahon, 2007; Wright, Masten, & Narayan, 2013). The relationships between parents, teachers, and peers, as well as implicated adaptive systems (education, learning and thinking systems, family and peers' social systems, religion and cultural systems) are embedded in the school and interact with individual protective or promotive factors building young people's resilience (Masten, Herbers, Cutuli, & LaFavor, 2008).

During childhood and adolescence, the quality of the relationships is at the core of individual wellbeing. In the framework of developmental, educational and socio-ecological resilience, we delineate and measure School Resilience as protective or promotive factors embedded in the quality of the relationships and in the reciprocal interactions between the members of the school community. In the school context, school professional and family members contribute to create a safe, meaningful, and supportive school environment. The purpose of the School Resilience Scale for Adults is to describe and measure these elements in the perspective of the adult members of the school community.

### 1.2. Constructs definitions: School Resilience and its dimensions

Based on the literature research, School Resilience is a multidimensional construct including five interrelated aspects of the school community acting as protective or promotive factors of youths' resilience and mental wellbeing. Extensive research in youths and school contexts has identified a broad set of emotional, cognitive, behavioral, and social outcomes when assessing youths' mental wellbeing (Weare & Nind, 2011), and the quality of the school environment has demonstrated its impact on them. In multi-systemic (Masten, 2018) and socio-ecological (Ungar, 2011) resilience paradigms, resilience is conceptualized in the interaction of the diverse actors and systems of relations, meaning, and values. In the same fashion, School Resilience involves relations, meaning, and values built and shared by the members of the school community. It is expected that the dimensions of School Resilience relate to each other because they rely on the interaction of systems and quality of the relationships within the school community, being the basic component trust and respect between among each other. However, our aim is to conceptualize them as independent dimensions emphasizing specific aspects that build youth wellbeing.

<sup>1</sup> The theoretical conceptualization and psychometric validation of the School Resilience Scale for Adults and for Adolescents rested on the Resilience Center of the Norwegian University of Science and Technology (RC-NTNU). Intellectual Property Rights are granted to ©Morote, Anyan, Hjemdal. The scales were sourced within the UPRIGHT theoretical model, and they were generated for the UPRIGHT programme evaluation (UPRIGHT Publication Policy, November 2019).

Although the theoretical background is resilience research and theory, there is a broad literature on school climate that is relevant. Research on school climate locate the school characteristics that predict better adaptation and educational attainment. A recent revision of the literature identified the factors that must guide future research on school climate and adolescents' wellbeing, namely, safety, the psychosocial academic environment, and the influence of demographic variables (Aldridge and McChesney, 2018). Cohen (2013) summarizes the most prominent aspects of positive school climate in four categories, (1) physical or social-emotional safety; (2) relationships, defined by respect for diversity, social support from adults and peers, and leadership; (3) teaching and learning, specified by social and ethical learning, support for learning, and professional relationships; and (4) institutional environment, hence the school connectedness, and physical surroundings (Cohen, 2013). The author highlights that there is no consensus or a gold standard to define and evaluate school climate, and over time, empirical research will show what aspects of school climate can and need to be assessed. The concept of school climate is limited compared to the definition of resilience that includes a general socio-emotional development and healthy adaptation, not limited to education attainment and school adaptation (Luthar, 2006; Masten & Barnes, 2018). Thus, the concept of School Resilience is a broader concept that expands beyond climate and may add and enrich the existing research.

Taken together, there is a vast empirical literature that offers useful hints to understand the precursors of youths' mental wellbeing in the school context. However, so far, there are no standardized scales to measure aspects of the school environment that predict adolescents' mental wellbeing. Based in this literature, we have selected and differentiated the most relevant precursors of youth's wellbeing, mostly related to the quality of the relations, identity, development, and mental wellbeing awareness. In this study, we present a conceptualization of School Resilience that combines specific aspects of (1) positive relationships, (2) belonging, (3) inclusion, (4) participation, and (5) mental health awareness of all the members of the school community. In the frame of resilience, a brief description of these dimensions is presented (in the Methods section, the operationalization of the constructs is presented).

### 1.2.1. Positive relations

In a multi-systemic resilience approach, positive relationships are not limited to individual social competences. Positive relations develop due to individual and organizational conditions, as well as shared values, and positive past experiences. Human resilience develops in relationships, in the complex, meaningful, and changing relations between different individuals and systems over time (Ecclestone & Lewis, 2014; Masten, 2007; Luthar, 2006). Therefore, the relationships between all the people involved in the school will shape the systems in young people's lives (Sanders, Munford, & Liebenberg, 2012). In the school, positive and warm relations between school professionals like teachers, counsellors, school social workers, psychologists, school administrators, and pupils build a supportive climate when positive expectations meet an orderly structure with rules and discipline, thus pupils feel competent and consequently experience emotional wellbeing (Aldridge & Ala'i, 2013; Bernard, 2007; Masten et al., 2008). All in all, youths' perception of their relationships with teachers as caring boost their psychological feeling of engagement (Sharkey, You, & Schnoebelen, 2008).

Positive relationships between peers work as protective factor for diverse areas of youth development (Luthar, 2006). Friendship functions as a buffer for low academic performance in the transition from middle school to high school (Langenkamp, 2010). Adolescents' social bonding is clearly associated to goal-oriented motivation and consequently to academic achievement (Fried & Chapman, 2012). Peer's positive relationships also boost emotional wellbeing. For instance, in resilience-based interventions, pupils learn to express and to assist their

peers in regulating and understanding each other's emotions (Ecclestone & Lewis, 2014). Most importantly, positive relations within the school system impact positively in other youth supporting systems. Strong teacher and youth relationships make the pupils better able to establish close relationships at home and in the future (Liebenberg et al., 2016).

### 1.2.2. Belonging

Broadly, school belonging refers to the degree in which students feel socially connected to and appreciated by their teachers and peers (Cueto, Guerrero, Sugimaru, & Zevallos, 2010). In a school community, the sense of belonging runs across the different actors and systems: teachers working as positive role models, voluntary family members participating in after-school activities, school counselors strengthening student's networks at home, school, and in the community. All together these build a broader sense of belonging in terms of connection and meaning making processes linked to a school community (McMahon, 2007). In a similar fashion, Baytiyeh (2019) uses the term social cohesion, a sense of unity and collective efficacy that reach out all parts of a pluralistic school community and may connect also with society. School professionals can foster the sense of belonging in vulnerable youth facilitating them to stay at school. Following youths' accounts, this process is based on honest, perseverant (i.e. committed), adaptable, and time-providing relations which in turn, allow the youth to negotiate for meaningful resources and support within the school community (Sanders & Munford, 2016). This sense of school collectiveness and belonging is promoted in continuous participation and inclusive policies towards shared goals.

Sometimes, school belonging has been studied in terms of engagement or connectedness. The lack of educational engagement is an established risk for educational, social, and developmental outcomes (Sanders & Munford, 2016). Educational disengagement and poor achievement have been pointed as the most relevant predictors of school drop-out trajectories (Bowers, Sprott, & Taff, 2013). Meanwhile, School connectedness has focused on students' perception of being part of a community (Aldridge & Ala'i, 2013), or their beliefs about how much adults at school care about them. It is considered a school resource and it has been associated to better health, mental health, and academic outcomes (Furlong, Ritchey, & O'Brennan, 2009).

### 1.2.3. Inclusion

An inclusive school community is aware of members not taking part and establishes measures to reduce barriers for participation. Inclusion is built upon the embracement and positive evaluation of human and social diversity within the school community including e.g. cultural, economic, racial, gender or sex-related differences, and disabilities. In school contexts, researchers talk about systemic barriers for inclusion and participation (McMahon, 2007). The interaction of all the systems, from individual to cultural and societal levels, define the degree to which social exclusion is adverse and integration is protective and build resilience (Burchardt & Huerta, 2009). Affirming diversity and pupils' friendship beyond cultural and social differences has been addressed in school climate research (Aldridge & Ala'i, 2013). Others limited the concept of inclusion to mutual respect for differences at all levels of the school context be that student-student, adult-student, or adult-adult (Cohen, 2013).

Inclusion has been studied mostly in relation to marginalized or at-risk groups, and it has been described in different youth's systems and trajectories. From early adolescence, the lack of inclusion at school is a risk with high transferable value to further social and individual development. Students from poor neighborhoods and high degree of incivility are less engaged in school (Daly, Shin, Thakral, Selders, & Vera, 2009). This risk is higher in male adolescents who drop-out of school, disconnect with work, and are involved with drugs and crimes. Among them, migrant youth with non-western background is overrepresented (Frønes, 2010). Embracing and encouraging respect for diversity

through inclusive teacher strategies provide students with an opportunity for identity formation. Vulnerable youths need to approach the school feeling like they could be themselves instead of searching for alternative spaces to form a coherent identity (Sanders & Munford, 2016).

#### 1.2.4. Participation

Participation is the degree to which students, family members, and school professionals engage actively in shaping the school environment (Jones & Lafreniere, 2014) by taking part, at different levels, in decision making processes or by influencing the way formal or informal tasks, goals or initiatives are defined or performed in the school community (Bernard, 2007; Lúcio & l'Anson, 2015). Participation includes positive attitudes, investment, and commitment to the school activities (Daly et al., 2009), including extracurricular activities (Jones & Lafreniere, 2014) where students not only expand networks but they develop co-operation and communication skills that are used in systems outside the school, for instance in the local community (Sanders & Munford, 2016).

A school environment with opportunities for meaningful participation is protective due to the support and positive expectations of family, peers, educators and community organizations (McMahon, 2007). This is how interconnected resilience systems influence reciprocally. Higher participation in schools is observed in socially competent pupils who also report positive parental and non-parental adult relationships (Jones & Lafreniere, 2014). Adolescents and families who participate at the school level commit to take actions beyond the schools by building community resilience (Pomeroy & Holland, 2016).

Participation of all members of the school community builds resilience-oriented schools. Professionals need children-informed perceptions of what is needed and how to boost differentially health promoting aspects of resilience (Theron, 2016). Resilience must be developed in ways that are meaningful and relevant for both individual children and for school's student population (Masten et al., 2008). Nurturing parent-children relationships through participation in school-based resilience programmes is a promising pathway to youths' adaptive development (Wright et al., 2013). In the broad literature on school climate, parents' school involvement is the most consistent unique predictor of adolescents' mental health (Suldo et al., 2012).

#### 1.2.5. Mental health awareness

Here, we propose that a school community that promotes wellbeing acknowledges mental health importance, fights stigmatization, and creates opportunities for effective help-seeking behaviors. Unlike the first four dimensions, mental health awareness in the school demands openness and knowledge about mental wellbeing. Traditionally, mental health literacy focused on knowledge about symptoms, disorders, risk factors, and prevention (Jorm et al., 1997). Today mental health literacy emphasizes on how to obtain and maintain good mental health as an important factor in promoting psychological and emotional wellbeing (Bjørnsen, Eilertsen, Ringdal, Espnes, & Moksnes, 2017).

Stigma around mental disorders develops during childhood and early adolescence. Aspects of stigma such as perceptions of dangerousness, otherness, or unpredictability are less studied (Chisholm et al., 2016). Personal and social aspects preclude help-seeking behaviors; for instance, self-reliance (and not family or peers' support) is a major precursor of both in-person and online help-seeking behaviors (Rickwood, Mazzer, & Telford, 2015). Also, difficulties in recognizing symptoms is the most important barrier for help-seeking, followed by stigma, embarrassment, and low self-reliance. Young people perceive that positive past experiences, social support, and encouragement from others support their help-seeking process (Gulliver, Griffiths, & Christensen, 2010).

Mental health literacy interventions are shown not to be effective in groups of vulnerable youth who already presented symptoms of depression (Goldney, Fisher, Wilson, & Cheok, 2003; Lam, 2014). On the contrary, early training and community-based educational programmes

influence youth mental health literacy in the long-term (Pinto-Foltz, Logsdon, & Myers, 2011). Multi-level and interactive approaches are more efficient to enhance adolescents' mental health literacy. Comprehensive interventions acknowledge emotional competences or the legitimate expressions of emotions such as anger or fear. Finally, teachers need to be equipped with enough mental health literacy to shift their attention between curricular academic activities and tune into adolescents' emotions, feelings, and needs (Ecclestone & Lewis, 2014).

#### 1.3. Aims

Research has demonstrated that some specific aspects of the school environment and school systems promote mental health and wellbeing. We have conceptualized them as protective or promotive collective factors of resilience in five dimensions. Although they are grounded on the quality of the relationships between the members of the school community, each of these five dimensions is characterized by specific aspects of them, and they have been studied in relation to different developmental, wellbeing, and school outcomes. The aim of the current study was to develop a theory and research-based operationalization of School Resilience covering the five dimensions presented, and to explore empirically the construct validity of the School Resilience Scale for Adults in terms of its content validity, factor structure, and internal consistency. The operationalization in the adults' scale presented here will be suitable for school professionals and family members. To explore the structure, correlated factor models of two, three, four, and five factors were explored, expecting the five-factor correlated model to outperform the others (study 1). The best exploratory structure model was then investigated with confirmatory analysis. As the factors are expected to be relatively homogeneous, a second-order factor model was pursued if the inter-factor correlations were high in the first-order level (study 2).

## 2. Methods

This section contains the scale development process, the description of participants, and recruitment. The statistical analyses and results of studies 1 and 2 are presented in the following sections.

### 2.1. Development of the School Resilience Scale for Adults (SRS)

The process of developing the SRS integrated construct validation at every stage of the process and combined both the rational-theoretical and factor analytic approaches (Simms, 2008). Unlike inductive processes of scale development, a theory-based substantive validity phase was the first step of this process. First, based on the literature revision and in the frame of a cross-country resilience-based program in European schools, a team of experts in resilience research, established the necessity of a new instrument to evaluate protective or promotive factors of resilience in the school environment. The five dimensions of School Resilience were chosen and operationalized based on empirical research that relates them with negative outcomes in youths' development and school adaptation. To evaluate a collective construct, the instrument will have paired versions for adults (presented in this study) and adolescents, therefore, the format of a survey with a five-point Likert scale was chosen. Then, the structural validity phase consisted of a strategy of items elaboration and selection with clear criteria and successive steps described below, data collection, and finally, the psychometric evaluation of the hypothesized model of the scale (Simms, 2008) in the Structural Equation Models framework (EFA and CFA models).

The SRS for Adults systematically organizes characteristics of the school environment acting as protective systems for children and adolescents' healthy development in school contexts. These characteristics are described in the items as group-level behaviors of the teachers, school staff, family members, and students. Table 1 summarizes the



definitions of the hypothesized dimensions of School Resilience, described in depth in the introduction, and presents a sample item which illustrates the operationalization.

The constructs definition and item construction were based on the empirical and theoretical literature of multi-systemic resilience, resilience in school contexts, and socio-ecological resilience. Because these approaches might be rather heterogeneous, the following criteria were used for items' construction and selection: (1) theoretical significance in terms of youths' development; (2) empirical links with either mental health, wellbeing, resilience, or maladaptation of the children and adolescents in school contexts; and (3) possibility to relate the behavior to the three main actors of the school community: educational professionals, family caregivers, and children and adolescents. The items describe resilience-oriented behaviors of the members of the school community (adolescents, school professionals and family members). Contents like behaviors focused on risk conditions (e.g. school violence), positive outcomes (e.g. stop bullying) or negative outcomes (e.g. increase school dropout) were avoided because of the theoretical perspective of this proposal. The School Resilience Scale aims at evaluating protective or promotive factors of resilience; it will not measure the risk or adversities (individual, family or school-related) that precede negative outcomes, neither will measure recovery or outcome behaviors.

We began with a large pool of items designed to evaluate each of the five dimensions of School Resilience. After successive revisions, the contents were refined, and the number was reduced to four items per dimension by high consensus between three specialists in resilience research and scale development and validation at the Resilience Centre of the Norwegian University of Science and Technology. Content validity was pursued by designing indicators representative of all potentially important aspects of the constructs (Simms, 2008). The original items were written in English. The construct definition, measurement design, and items were presented to the UPRIGHT consortium members for their consensus and translation into Danish, Polish, Spanish, and Italian. The UPRIGHT consortium is an interdisciplinary team of bilingual researchers, psychologists and educators, specialized in resilience-based, health, mental health, and positive psychology intervention in schools, health systems, or policy interventions. The 20 final items of the School Resilience for Adults were included in the survey designed for UPRIGHT's cocreation process (i.e. quantitative strand of research).

## 2.2. Participants and recruitment

A total of 344 participants answered the School Resilience Scale, 4 participants were removed from the data set due to missing responses (> 2 items – 10% of the total scale). The total number of participants was 340, their mean age is 45.5 years, and they came from Spain = 41 (12.1%), Italy = 59 (17.4%), Poland = 60 (17.6%), and Denmark = 180 (52.9%). The family members or caregivers ( $n = 211$ , 62% of the total sample) were 29 to 62 years old, their mean age was 44.7 years; 17.1% were men and 82% were women. The teachers and school staff ( $n = 129$ , 38% of the total sample) had an average of 46.8 years of age (ranging from 29 to 63), 20.2% were men and 79.8% of them were women.

Participants were invited as volunteers from the schools selected to take part in the cocreation and in the first wave of implementation of UPRIGHT intervention in Spain, Italy, Poland, Denmark (Morote et al., 2020). The schools participating in UPRIGHT were assigned to the intervention and control groups through a cluster randomized sampling process, and they were stratified according to the number of adolescents, their location (rural, urban) and socio-economic status (Las Hayas et al., 2019). The participants contacted were those involved in the starting stage of the project. UPRIGHT's local research teams contacted the schools' administration to request participants' informed consent and to explain the characteristics of UPRIGHT's cocreation process.

Adult participants were contacted through e-mails, and the instrument was answered online. The instructions informed about the cocreation process of the UPRIGHT programme, and the importance of their participation on it. It also explained about their rights, confidentiality, anonymity, and verified the consent before proceeding. The inclusion criteria for family members, mothers, fathers or main caregivers, was to have at least one adolescent participating in UPRIGHT the following school semester. The inclusion criteria for teachers was to work directly with adolescents aged 12–14 in the selected schools. The school staff invited to participate was relevant for mental health promotion, tutoring, or well-being services in the schools of each country. Local research teams were encouraged to reach equal number of participants by gender.

**Table 1**  
Description and sample item for each factor of the School Resilience Scales (SRS).

Factors	Description	Sample item
	The extent to which students, teachers, school staff and family members ...	<i>How much do you agree that in the school ...</i>
Positive Relations	... build open, honest, respectful relations. ... build friendship based on understanding, self-worth and support. Students perceive at least one adult that cares and advocates for them.	<i>Teachers and school staff promote friendship, acceptance and understanding among students</i>
Belonging	... (students) are valued (listened, accepted) by teachers and peers. ... (students and teachers) genuinely have a place in the school community (find purpose and meaning).	<i>Students find purpose and meaning through their participation in the school activities</i>
Inclusion	... embrace diversity within the school community, by respecting, celebrating and honoring the differences between people. ... identify risks of exclusion and encourage participation. ... (school staff) promotes inclusive teaching strategies.	<i>Students and school staff break barriers for the participation of families with different backgrounds (e.g. special needs, multicultural, social status, sexual diversity, etc.).</i>
Participation	... (families and students) take part in school life and contribute meaningfully to the school community. ... (teachers) are aware of those students and families who are not participating.	<i>The opinions and needs of parents and students are taken into consideration in the school's decisions.</i>
Mental health awareness	... (teachers and students) have a basic understanding about how to maintain good mental health, what are mental disorders and how to face them; ... decrease stigma against mental illness and enhance help-seeking efficacy in the school community.	<i>There are strategies and information to deal with negative stereotypes about mental health.</i>

### 3. Study 1: Exploratory factor analysis in the ESEM framework

#### 3.1. Statistical analyses

The analyses were performed in Mplus version 7.4 (Muthén & Muthén, n.d.). Item-level missing were low, ranging from one item to two items for only nine cases, thus, the full information maximum likelihood estimation was used to handle missing data. Owing to some non-normality in the data, Maximum Likelihood Estimations with Robust standard errors were chosen in MPLUS. For the exploratory analysis, the MLR estimation and Chi-Square difference test was used for comparison of nested models (Satorra & Bentler, 2010). As we expected the factors to be correlated, the default Geomin rotation was used.

We evaluated the hypothesized measurement model of the SRS for adults in the SEM framework using the less restrictive exploratory (EFA), and the more restrictive confirmatory (CFA) factor analyses by splitting the sample, 40% for the EFA ( $n = 136$ ) and 60% for the CFA ( $n = 204$ ). According to Brown (2015), prior to conducting a CFA, the exploratory framework of factor analysis can be used when a researcher has “a sense of the correct number of common factors and the hypothesized pattern of item-factor relationships, based on theory-driven item development and preliminary exploratory research”(p. 168).

#### 3.2. Results

Results in Table 2 indicate that the optimal fit to the data was obtained by a five-factor solution. This finding was corroborated by the RMSEA: its estimate was 0.064; its 90% confidence interval had an upper bound value of 0.083, which was the closest to recommended cut-off value of 0.08. The five-factor solution was the only model showing the three additional indices in the recommended values: CFI > 0.90, TLI > 0.90, and SRMR < 0.08. Interestingly, the model fit indices improved their values from the one-factor to the five-factor solutions, except for the four-factor model.

Inspection of the factor structure showed that for the three-factor solution, items measuring *Positive relationships*, and *Belonging* were incorporated under a common factor, and other items under *Participation* and *Mental health awareness* factors. Items measuring *Mental health awareness* remained incorporated under a common factor in the three, four and five-factor solutions. The five-factor solution comprised *Positive relationship*, *Belonging*, *Inclusion*, *Participation*, and *Mental health awareness*. Model comparison with the scaled Chi-Square difference test showed that the four-factor model failed to significantly improve model fit compared with the three-factor model ( $X^2(17) = 23.326, p = .139$ ) and that the five-factor model improved model fit compared with the four factors ( $X^2(16) = 76.966, p < .001$ ). Thus, taking the preliminary results into account the five-factor solution was deemed as the most optimal model. The five-factor solution was then submitted for testing in the more restrictive confirmatory factor analysis.

**Table 2**  
Exploratory factor analyses of the School Resilience Scale for Adults with one to five factors ( $n = 136$ ).

Number of factors	$\chi^2$	Df	P	RMSEA [90% C.I.]	CFI	TLI	SRMR
1	429.805 (1.1801)	170	< 0.001	0.106 [0.094, 0.119]	0.797	0.773	0.076
2	364.557 (1.0648)	151	< 0.001	0.102 [0.089, 0.115]	0.833	0.790	0.061
3	232.111 (1.1299)	133	< 0.001	0.074 [0.058, 0.090]	0.922	0.889	0.045
4	219.451 (0.9300)	116	< 0.001	0.081 [0.064, 0.097]	0.919	0.867	0.036
5	155.266 (0.9665)	100	< 0.001	<b>0.064</b> [0.043, 0.083]	<b>0.957</b>	<b>0.918</b>	<b>0.028</b>

Note:  $n = 136$ . Maximum Likelihood Estimation with Robust standard errors (MLR). The Scaling correction factor of the  $\chi^2$  are shown in parentheses under the  $\chi^2$  value. RMSEA = Root-mean square error of approximation; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; SRMR = Standardized root mean square residual.

### 4. Study 2: Confirmatory factor analyses and internal consistency

#### 4.1. Statistical analyses

For the confirmatory study (CFA), the MLMV estimate with robust standard errors computed using the expected information matrix coupled with a mean- and variance-adjusted likelihood ratio was the optimal choice (Maydeu-Olivares, 2017). The MLMV does not generate scaling correcting factors for model comparisons. Model fit was evaluated with the following indices: Standardized Root Mean Square Residual (SRMR) (Browne & Cudeck, 1992) and Root Mean Square Error of Approximation (RMSEA) (Hu & Bentler, 1999) values < 0.08 and values equal to or < 0.06 (upper 90% CI close to or < 0.08) respectively; Comparative Fit Index (CFI) and a non-Normed Fit index (NNFI; aka TLI) equal to or > 0.95 (Hu & Bentler, 1999). For the individual factor loadings, we used a cutoff value of 0.30 as the minimum level of practical significance (Kline, 2015), and  $p < .01$  as the significance level for two-tailed statistical tests (Kock, 2014; Stevens, 1996).

The internal consistency was examined by comparing Cronbach’s alpha,  $\alpha$  (which assumes tau-equivalence, factor loadings for all items) and Raykov’s rho,  $\rho$  (which accepts differences in tau, factor loadings) (Raykov, 2001) looking for the best approximation due to non-normality in the data (Trizano-Hermosilla & Alvarado, 2016) and multidimensionality of the model (Widhiarso & Ravand, 2014). To evaluate construct validity, the Average Variance Extracted (AVE) for each construct was evaluated against its correlation with the other constructs (Cheung and Wang, 2017; Fornell & Larcker, 1981; Mehmetoglu & Jakobsen, 2016). Convergent validity was considered to be confirmed when the AVE was larger than the construct’s correlation with other constructs and minimally explained an average of 50% (i.e.,  $\geq 0.50$  for AVE), and Raykov’s rho (composite reliability) is higher than 0.6 (Fornell & Larcker, 1981). When the Maximum Shared Variance (MSV) and the Average Shared Squared Variance (ASV) were both lower than the AVE for all the constructs, discriminant validity was confirmed. Also, if results from the first-order five correlated factors model (CFA) showed high inter-factor correlations, there might be discriminant validity concerns (Kohring & Matthes, 2007), and empirical grounds to test a hierarchical model were set. Hence, second-order factor(s) were required to eliminate substantial correlations between first-order factors and discriminant validity concerns (Brown, 2015; Kline, 2015; Wang & Wang, 2019). Analyses were performed in Mplus version 7.4 (Muthén & Muthén, n.d.).

#### 4.2. Results

A five-correlated first-order model was inspected in the subsample ( $n = 204$ ). The initial model specification reached good model fit, CFI = 0.956; TLI = 0.948; SRMR = 0.045; RMSEA = 0.038 [90% C.I: 0.020, 0.053]. Then, internal consistency of the factors was examined by comparing Cronbach’s alpha,  $\alpha$  and Raykov’s rho,  $\rho$ , for instruments consisting of multiple dimensions. Both Cronbach’s alpha,  $\alpha$  and Raykov’s rho,  $\rho$  showed good results: Positive relationship:  $\alpha = 0.803$ ;  $\rho = 0.808$ , Belonging:  $\alpha = 0.840$ ;  $\rho = 0.844$ , Inclusion  $\alpha = 0.844$ ;

$\rho = 0.846$ , Participation:  $\alpha = 0.847$   $\rho = 0.847$ , and Mental health awareness  $\alpha = 0.880$ ;  $\rho = 0.884$ . Raykov's rho,  $\rho$  was slightly superior in four factors, showing how reliably the items might reflect the same underlying variable (i.e. detecting nonsignificant indicator-construct loadings, or possibly correlated errors) (Raykov, 2001). The Cronbach's alpha for the complete scale (20 items) was optimal:  $\alpha = 0.945$ , and no item was suggested to be deleted to improve reliability in any factor or the complete scale.

Correlations between the five first-order factors in the CFA model ranged from  $r = 0.60$ ,  $p < .001$  to  $r = 0.98$ ,  $p < .001$ , with the factor Mental health literacy having the smallest correlation with the other subscales. The other factors showed substantial correlations ranging from  $r = 0.73$ ,  $p < .001$  (Participation with Belonging) to  $r = 0.98$ ,  $p < .001$  (Positive relationship with Belonging). Estimated AVE were all above the acceptable threshold of 0.5, and composite reliability (Raykov's rho,  $\rho$ ) was in higher than 0.6, which indicated support for convergent validity except the first factor, Positive relationship. MSV and ASV were larger than AVE for SRS scales; hence, support for discriminant validity was not established except for the Mental Health Awareness factor. Convergent and discriminant validity results are presented in Table 3.

As the correlations between the first-order factors were high, a second-order factor model was specified to account for the covariation among the first-order factors (Brown, 2015; Kline, 2015; Kohring & Matthes, 2007; Wang & Wang, 2019). Table 4 shows the Chi-Square and model fit indices of the five correlated factor model and the second-order confirmatory factor analyses of the School Resilience Scale for Adults.

The second-order model also showed good fit to the data although the first-order model shows slightly better fit indices. Factor loadings and R-square values of the observed variables in both CFA models were significant at  $p < .001$ . Fig. 1 shows the second-order model with a common underlying factor of School Resilience accounting for the covariation of the first order factors. Factor loadings of the observed variables in their expected first-order factor model were in general high and significant ( $\lambda = 0.62$  to 0.89). Similarly, factor loadings of the second-order factor model were high and significant at  $p < .001$ . The standard structural coefficient of factors on the higher-order factor are estimates of their validity (i.e. larger the factor loadings as compared with their standard error) (Bollen, 1989). There is not gold-standard cut-off value for first-order factor loadings, so conventional  $\lambda \geq 0.7$  was accepted as good measure of their latent construct (Doll, Raghunathan, Lim, & Gupta, 1995). The Coefficient of determination (R-squared values) for the first order factors are above 0.5, considered an adequate level, or above 0.75, a substantial level (Henseler, Ringle, & Sinkovics, 2009): Positive relationship:  $R^2 = 0.874$ , Belonging:  $R^2 = 0.855$ , Inclusion  $R^2 = 0.935$ , Participation:  $R^2 = 0.723$ , and Mental health awareness  $R^2 = 0.579$ . In summary, the hypothesized models of School Resilience Scale as a multidimensional construct were a good fit to the observed data.

## 5. Discussion

School Resilience is a multidimensional construct characterized as a collective resource of the school community that may act as a promotive or protective factor of children and adolescents' wellbeing, or positive adaptation in schools. The definition and operationalization of School Resilience is based in the vast literature of resilience in youths, more precisely, the current theory and research of multi-systemic and socio-ecological resilience in schools.

### 5.1. From theory to empirical models

The theorization of multidimensional School Resilience as contained in the introduction, informed a sense of how to measure the construct. Then, the operationalization of the five School Resilience

dimensions focused on the characteristics of the school environment linked to youths' mental wellbeing mainly through empirical research. This literature review allow us to identify specific aspects of relationships, belonging, inclusion, participation, and mental health awareness empirically associated with youths' mental wellbeing or positive school adaptation. A theory-driven process of items' construction was undertaken to define indicators for school staff, teachers, and family members in the adults' scale. Finally, through successive revisions we retained relevant and representative items for the five subscales contained in the SRS for Adults and test them empirically

When contrasting freely the hypothesized multidimensionality of School Resilience, the exploratory five factors model was the only model showing four fit indices in adequate levels. In the SEM framework, the exploratory analysis compares models' precision by contrasting models with different numbers of exploratory factors in rotated oblique solutions (allowing exploratory factors correlations). This approach gives flexibility and a closer approximation to reality (Asparouhov & Muthén, 2009). After identifying five dimensions, the more restrictive confirmatory model (CFA) was inspected in a randomly split half of the total sample. The predetermined five-factors' model proved to be an adequate representation of the observed data, and due to the high factors' correlations, a second-order factor model was pursued successfully.

In a second-order factor model, a higher order latent factor is modeled as causally impacting the first order latent factors, therefore it is not directly connected to any observed indicator. Besides accounting for first orders factors' covariation, a second order factor is modeled as being at a higher level of abstraction thus it must be related to a theoretical background that supports its conceptualization. Further, it needs to be related with other factors that are at similar level of abstraction in a nomological network, used as a consequent, predictor (Chin, 1998), or to distinguish shared elements with other constructs (Morote, Hjerdal, Krysinska, Martinez Uribe, & Corveleyn, 2017; Morote, Hjerdal, Uribe, & Corveleyn, 2017). As presented in the introduction, we find that multi-systemic and socio-ecological theories of resilience are solid grounds to hypothesize a higher order School Resilience construct encompassing non-compartmentalized and interconnected systems of relations shared by the members of the school community. Moreover, we have hypothesized that in these relationships, systems of meaning and values are also exchanged and reinforced, creating collective promotive or protective factors of resilience. Further tasks are first to determine empirically if equal constraints among the ratio of the paths between first and second order latent factors are realistic, or if not, to explore if a bi-factor or a modified first order correlated model are preferred. A more ambitious and necessary task connecting theory and empirical research is to confirm the capacity of School Resilience, or its dimensions, to act as protective factors that can change maladaptive trajectories of risk, and/or to boost youths' positive development and wellbeing as general promotive factors of resilience within a nomological network (Chin, 1998).

Lastly, when analyzing the relation of first-order latent factors with the high order factor, the strength of the paths connecting them is in optimal levels (Chin, 1998). Not less important, when assessing a structural model, the coefficient of determination ( $R^2$ ) of exogenous

**Table 3**  
Convergent and Discriminant validities assessment (n = 204).

Scales	AVE	MSV	ASV
Positive Relations	0.48	0.96	0.68
Belonging	0.55	0.96	0.68
Inclusion	0.59	0.76	0.72
Participation	0.56	0.74	0.56
Mental Health Awareness	0.65	0.65	0.48

Note: AVE = Average Variance Extracted; MSV = Maximum Shared Variance; ASV = Average Shared Squared Variance.

**Table 4**  
First (five-factors)- and Second-Order Confirmatory Factor Analyses of the School Resilience Scale for Adults (n = 204).

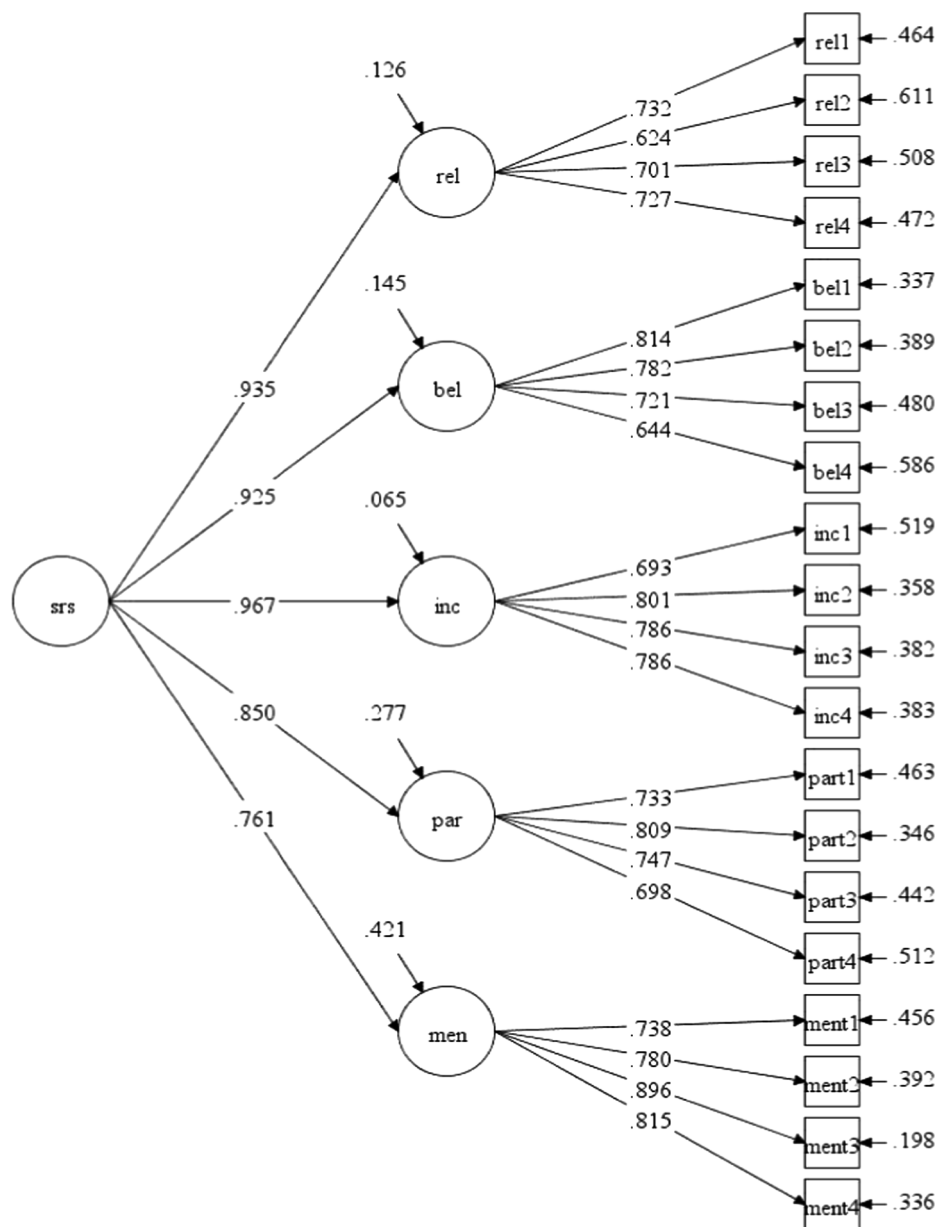
Factors	$\chi^2$	Df	P	RMSEA [90% C.I.]	CFI	TLI	SRMR	$\Lambda$
First Order	254.905	160	< 0.001	0.038 [0.020, 0.053]	0.956	0.948	0.045	0.626 - 0.904
Second Order	232.518	165	< 0.001	0.046 [0.031, 0.059]	0.935	0.925	0.051	0.624 - 0.896

Note: n = 204. Maximum Likelihood Estimation with Robust standard errors with mean- and variance-adjusted likelihood (MLMV). RMSEA = Root-mean square error of approximation, C.I. = Confidence Interval; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; SRMR = Standardized root mean square residual;  $\Lambda$ : standardized factor loadings.

latent factors might be substantial (> 0.75), moderate (> 0.50), or weak (> 0.25). If the latent factor relies on few endogenous variables, such as the School Resilience subscales (four items), a moderate level is accepted (Henseler et al., 2009). School Resilience latent dimensions explain a significant proportion of the variability of the observed behaviors.

For the assessment of the convergent and discriminant validities we

have used the combined criteria proposed by Fornell and Larcker (1981). In multidimensional scales, convergent and discriminant validities are complementary criteria for construct validation. In the SEM framework, the former shows that a set of indicators represents one and the same underlying construct, while the second confirms that the latent constructs exhibit sufficient difference (Henseler et al., 2009). In our results, convergent validity is achieved, while discriminant validity



**Fig. 1.** Second-order measurement model of School Resilience Scale for Adults using Confirmatory Factor Analysis. Completely standardized path loadings are presented: rel = Positive relationships; bel = Belonging; inc = Inclusion; par = Participation; men = Mental health awareness; rel1 to men4 = observed variables/indicators of the School Resilience Scale for Adults available upon request due to copyright (Masked ©).



is only achieved by the fifth dimension, Mental Health Awareness (AVE > than MSV and ASV). These results are explained by the high correlations observed within the first four factors at the first order level. This is a risk observed in theory-driven instruments where the contents of a multidimensional construct stems from a common body of knowledge.

As in other positively phrased resilience constructs, multidimensional School Resilience is a construct with left-skewed items scores' distribution (i.e. larger proportion of respondents scoring in the higher values due to acquiescence or positivity bias) (Anyan et al., 2020; Hjemdal, Friborg, Stiles, Martinussen, & Rosenvinge, 2006). Consequently, to explore each dimension consistency, the composite reliability Raykov's rho, provides a better estimation because of its tolerance to differences in items' loadings per dimension, non-normal distribution of responses, and its stability in small samples, (Trizano-Hermosilla & Alvarado, 2016; Widhiarso & Ravand, 2014). Raykov's rho is based on latent trait theory and it is implemented with a SEM framework. It detects non-significant indicator-construct loadings, or possibly correlated errors between indicators, therefore it shows how consistently the items reflect the same underlying construct (Raykov, 2001). In a multidimensional model, the alpha estimator tends to underestimate the internal consistency of the latent constructs (Tavakol & Dennick, 2011). In our results, the composite reliability proved to be equal or higher than the alpha coefficients, thus contributing to support the preliminary validity of the instrument's dimensions.

Supported in the confirmation of a second-order model, indicators' scores could be combined to create an overall value for School Resilience; thus, a general reliability was explored with the alpha coefficient (i.e. as if the observed indicators measure a single latent true variable). Our results confirm the contribution of each indicator to the internal consistency of the complete School Resilience Scale (Nunnally & Bernstein, 1994; Tavakol & Dennick, 2011).

## 5.2. Developing an understanding of collective resilience in school contexts

This study extends resilience theory by embedding the concept of school resilience as a collective multidimensional resource of the school community, operationalized in a construct and instrument for its diverse actors. We acknowledge the work of Albert Bandura, whose conceptualization of "collective efficacy" is the most influential contribution to the definition of collective resources in educational contexts. Since its earliest conceptualization, teachers' collective efficacy is their shared belief on their capacity to boost students' academic success (Bandura, 1994, 2000). The study of School Resilience extends this concept to school professionals' capacity of building a wellbeing-promoting environment together with other two key members of the school community: the family caregivers, and the students. Teachers' collective efficacy demonstrates that a group-level attribute may emerge in a school faculty as a collective driven force, and that it predicts relevant aspects of the school well-functioning and students' attainment (Ramos, Silva, Pontes, Fernandez, & Nina, 2014). School resilience, as a protective or promoting factor, might counteract the negative impact of characteristics that make the school unsafe or a risk environment for youths' wellbeing (e.g. institutional exclusion, violence, uncertain rules and goals, low expectations, precarious material conditions, etc.). The wide-ranging approximation to mental wellbeing in school contexts supports exploring positive and negative outcomes related to School Resilience. Although there is still a small proportion of interventions that connect the "school culture, ethos or ecology" to mental well-being, their results and effectiveness are promising (p. i60, Weare & Nind, 2011).

The evaluation of group-level resilience factors fits with the state of the art of resilience theory and with the implementation of a whole-school resilience programme such as UPRIGHT. UPRIGHT engaged the members of the school community since its cocreation phase. It builds resilience skills in teachers and school staff who will become resilience

promoters with the pupils and their families. Families receive in-person and online training and tools so that they can complete resilience-promoting activities at home with their children. In other words, multiple systems of adolescents' resilience are involved in a whole-school intervention. In the UPRIGHT programme there is a link between the promotion of individual resilience skills and the construction of a resilience promoting environment by strengthening the involvement and the quality of the relationships of diverse members of the school community. In this context, the SRS may complement the most sophisticated effectiveness evaluation methods where a theory-driven instrument strengthens randomized control trial designs for testing effectiveness on resilience-related outcomes (Chen & Rossi, 1983; Chen, 1990).

In accordance, resilience theory underlines that resilience is grounded on relationships across interacting systems that grow in complexity across life, from the individual, to the nuclear family, the school, and the community (Masten, 2018). For youths these multiple systems are embedded in their relationships with other people, and in the engagement with a well-functioning school (Masten & Barnes, 2018). Resilience-based interventions in schools show that different aspects of the quality of the relationships are deeply interconnected. Reciprocal, caring, and respectful relationships facilitate youths' meaningful participation in their learning process and their involvement in school activities, thus enforcing a sense of own place, coherence, and belonging within the school community (Furlong et al., 2009; McMahan, 2007). A group-level understanding of resilience in schools connects with humans' relational and environmental orientation, where a large part of life is situated in social interaction with the environment and people (Ecclestone & Lewis, 2014). The recognition, embracement, and pricing of diversity within the school community in inclusive curriculums (McMahan, 2007), response to threats (Baytiyeh, 2019), or fighting mental-health stigmatization is embedded in the quality of the relationships in school settings, especially if a community-based understanding of resilience is encouraged (Ecclestone & Lewis, 2014). School Resilience aims at reflecting this complexity in coherence with adolescents' experience of mental health promoting environments. Therefore, the five dimensions of the SRS are deeply rooted in relational aspects, although there is an effort to distinguish specific characteristics of relationships in order to investigate their possible differentiated influence in socio-emotional or educational outcomes.

Finally, we must acknowledge previous efforts to conceptualize "school resilience". Mainly, they define "school resilience" in the context of disaster mitigation, post-disaster recovery (Baytiyeh, 2019; Dwiningrum, 2017), or in retrospective analysis of an intervention on youths' civic responsibility and community action (Newman & Dantzer, 2015). Unlike our proposal, for Newman and Dantzer (2015) school-level resilience is only children's perception of their meaningful participation in school, and their reliance on at least one adult. Baytiyeh (2019) found that in the acute phase of disaster response, "school resilience" mostly relied on teachers' capacities to lead preventive actions or immediate responses. However, Dwiningrum (2017) identifies aspects of positive group functioning (e.g. mutual support, belonging, and meaningful participation) in both students and teachers. Interestingly, Baytiyeh (2019) states that school resilience surpasses the school boundaries and plays a central role in building community resilience, thus showing social implications of a well-functioning school environment. However, in these studies, unlike the proposal presented here, collective resilience responds to acute threats, and it is not meant to boost positive outcomes or resilience in the youths or in other members of the school community. Other efforts coming from organizational psychology and engineering resilience (Schelvis, Zwetsloot, Bos, & Wiezer, 2014) emphasize in the need of broader perspectives of resilience in school contexts.

### 5.3. Limitations

This research has the limitations of a cross-sectional sampling. A cross-sectional study impedes the generalization of results and the examination of causal and temporal dimension of the variables of study. Also, the sampling process was predominantly convenience where participants responded depending on their availability and motivation within the framework of the cocreation process of the UPRIGHT programme. The sample size and the heterogeneity among groups (by country and gender) did not allowed for the inspection of the items' discrimination within subscales and group comparisons of the structural model. Although full convergent and discriminant validity based on the Average Variance Extracted (AVE) were not supported, it is important to state that sample size limitations may have influenced these results. Unlike instruments constructed inductively, theory-driven instruments tend to show adequate convergent validity (Simms, 2008).

Additional studies, with larger and homogeneous groups, should further explore the construct validation of the SRS. Randomized and longitudinal sampling processes will allow to explore the complex relationships between school resilience and relevant constructs as well as the diverse trajectories of individual wellbeing and socio-educational school outcomes.

### 5.4. Implications and directions for future research

Further studies should establish the definitive first, bi-factor or second order model of the SRS for Adults. Then, the external and predictive validity of the SRS must be established in a nomological network. Empirical research should explore the capacity of School Resilience dimensions to act as protective and/or promotive factors of resilience, that is, if they protect at-risk adolescents, or if they have a positive impact on resilience-related outcomes regardless risk conditions (Fletcher & Sarkar, 2013). Having accomplished this, research should identify mechanisms or processes that might underlie their distinctive functioning (Luthar, 2006). The multi-level invariance of School Resilience across the members of the school community should be explored, particularly across genders, countries, and across groups of school professionals and family members.

Research should also clarify the capacity of School Resilience to boost positive outcomes at individual or school levels. School characteristics impact positively on adolescents' individual protective factors and mental health outcomes (Hjemdal, 2007), as well as on school outcomes related to individual and collective resilience. At the school level, the usefulness of School Resilience to predict school indicators such as school violence, bullying, absenteeism, and drop-out must be explored (Ecclestone & Lewis, 2014; Hodder et al., 2017).

Being a theory-driven and school-level measurement tool, the SRS will contribute to the effectiveness evaluation (Chen, 1990) of resilience-based school programmes or health promoting initiatives in schools (World Health Organization, 2018). Usually, effectiveness is established with youths' self-report of mental health outcomes. The sole reliance on adolescents' self-reports may result in under reporting mental health outcomes. Also this strategy is blind to contextual aspects such as school strategies or cultural background (Dray et al., 2017). Around the world, health related school policies and initiatives seek to build safe learning environment for children and adolescents. However, the lack of evaluation is among the key challenges identified by the World Health Organization and UNESCO (United Nations Educational, Scientific and Cultural Organization) for implementing and upscaling these policies (World Health Organization, 2018). Universal and whole-school resilience programmes, as well as health promoting initiatives will benefit from the evaluation of positive aspects of the school community that might be effectively targeted and measured.

### 5.5. Conclusion

The School Resilience construct and instruments shift the focus of resilience research from the individual to the collective and the school community. Largely, youths' positive adaptation in schools has been defined with Western psychological standpoints, where school attainment or individual healthy development have been prioritized (Ungar, 2008; Ungar & Liebenberg, 2011). The definition of School Resilience Scale dimensions demands a collective subject, the school community, with diverse agents acting together to create a resilience-promoting environment in terms of their connections. Globally, resilience researchers work to build shared understandings of youths' positive development, while locally, the study of cohesive communities, such as schools, will contribute to define positive adaptation and development within the contexts where they emerge, with a more culturally and ecologically sensitive approach. This is the future and ambition of School Resilience.

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### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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### Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.childyouth.2020.105589>.

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