



Z-proso

THE ZÜRICH PROJECT ON THE SOCIAL DEVELOPMENT FROM CHILDHOOD TO ADULTHOOD



AN OVERVIEW

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The Zurich Project on the Social Development from Childhood to Adulthood (z-proso) is an internationally important longitudinal study that investigates the life-course of 1,675 children since their admission to the first year of Zurich's primary schools in the autumn of 2004. In September 2018, the eighth wave of data collection was completed, with the then seven-year-old children now in their early twenties. The detailed data collected

over 15 years provide an in-depth insight into the life course of young people at the beginning of the 21st century. From the beginning, the main focus of the study related to the causes and consequences of aggression and victimisation. Other issues have been added as the study progressed, including young people's perception of law and police work, the causes of substance abuse and the dynamics of mental health.

MAIN OBJECTIVES OF Z-PROSO

The Zurich Study on the Social Development from Childhood to Adulthood was initiated by Prof. M. Eisner (University of Cambridge, University of Zurich) and is currently led in cooperation with Prof. M. Shanahan and Dr. D. Ribeaud (both University of Zurich). It is affiliated with the Jacobs Center for Productive Youth Development of the University of Zurich and financially supported by the Swiss National Science Foundation as a national research infrastructure. The Study has three principal objectives:



HIGH-QUALITY RESEARCH

z-proso contributes to a better understanding of behavioural problems in children and young adults through interdisciplinary research excellence.



CAPACITY BUILDING

Through its international network, z-proso inspires early career researchers in Switzerland and abroad to address innovative questions while supporting them in their academic development.



KNOWLEDGE TRANSFER WITH IMPACT

z-proso works with local, national and international policymakers to develop more effective strategies to promote psychosocial health and reduce violence.



BIRTHPLACE OF THE MOTHERS OF STUDY PARTICIPANTS

PARTICIPANTS

With around 400,000 inhabitants, Zurich is the largest city in Switzerland. Due to its role as an affluent economic hub, it has been attracting immigrants from abroad for decades, making it one of Europe's most culturally diverse cities today. This is reflected in the study sample, which is largely representative of the city's youth population and comprises three quarters of all children who were admitted to one of its primary schools in the 2004/5 school year.

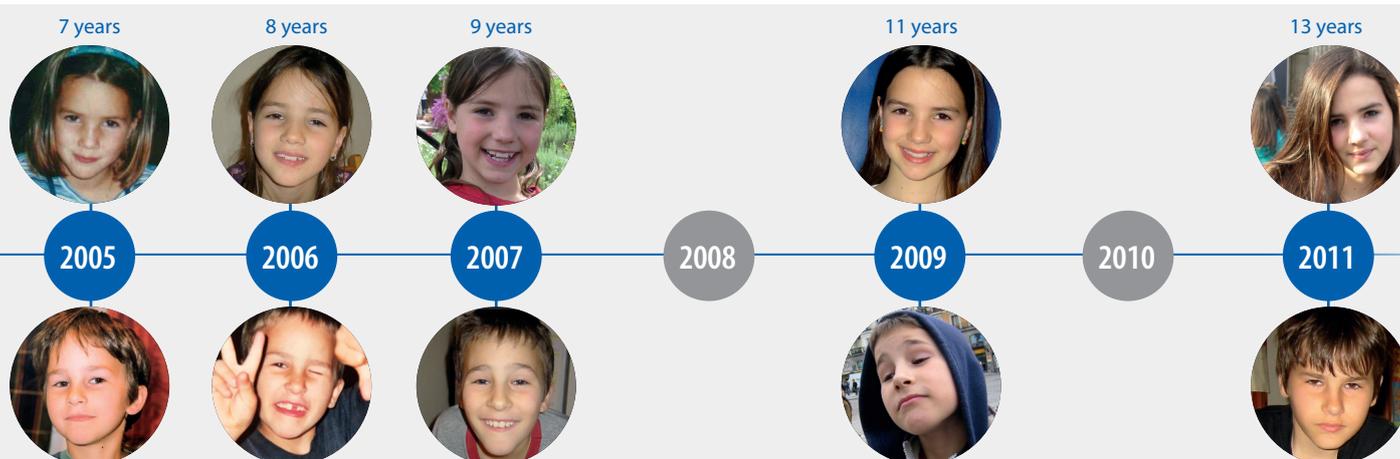
Around 37% of all parents of the participants were born in Switzerland. At 63%, the majority comes from 87 countries and speaks 64 languages, with Serbo-croatian languages (9%), Albanian (6%), Portuguese (6%), Spanish (6%), Italian (6%), Tamil (4%) and Turkish (4%) as the most frequent mother tongues after (Swiss) German.

As in other European cities, children in Zurich grow up in diverse family arrangements. At the age of 13, 71% of participants lived with both birth parents, 18% lived in a single-parent household and 11% in other constellations such as patchwork families with a stepfather.

Towards the end of compulsory schooling at the age of 15, 20% of participants attended a grammar school, 41% a secondary school A (upper tier), 37% a secondary school B or C (lower tier) and 2% were in special education. In this respect, the ethnic origin and parent's nationality play a crucial role: while 31% of young people with at least one parent born in Switzerland attended grammar schools, this proportion is only 12% for adolescents whose parents were both born abroad.

Z-PROSO IN FIGURES

Target sample	All 1,675 children who were admitted to the first year of primary school in autumn 2004 in one of 56 representative state primary schools.
Median birth month	October 1997
Male participants	52%
Data collection waves (age) participants ... adult primary caregiver ... the teacher ... criminal offence records of the participants	7, 8, 9, 11, 13, 15, 17, 20 years 7, 8, 9, 11 years 7, 8, 9, 10, 11, 12, 13, 15, 17 years 10-17 years, entries in the Canton of Zurich's Legal Information System (RIS)
Participation rate	94% of the study subjects participated in at least one survey (see section 'participation rate', below).
Central themes	Aggressive and non-aggressive behavioural problems, delinquency, internalising problems, social skills, educational experiences, stressful life events, victim experiences, moral development, leisure behaviour, interactions with peers and personality traits.



EXPERIENCES WITH VIOLENCE IN THE LIFE COURSE

Contributing to the better understanding of victim experiences and problem behaviours of children and adolescents is a core goal of the z-proso study. The study participants, their parents and their teachers were repeatedly surveyed about issues such as corporal punishment or bullying at school. Their responses yield a nuanced picture of the

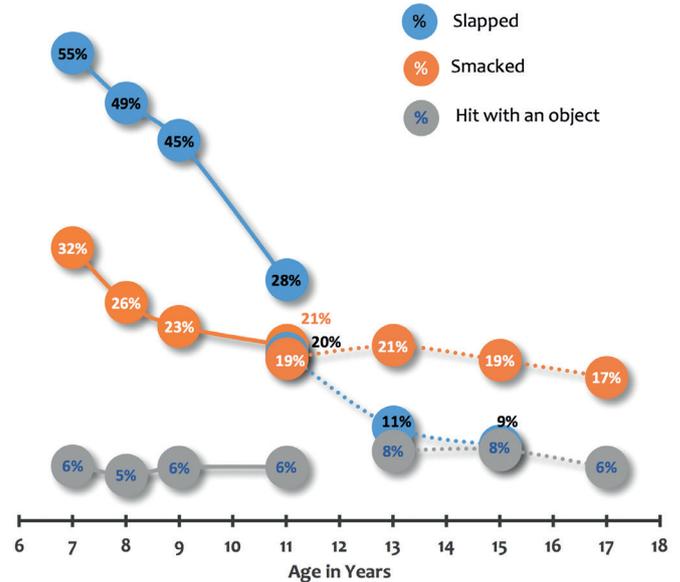
experiences that children and adolescents have with violence over their life course.

VICTIMISATION

Although Zurich is an affluent city, with excellent education and healthcare systems, and comprehensive prevention provisions, many children and adolescents are victims of violence. At the beginning of primary school, around half of the children occasionally experience parental corporal punishment such as spanking or slapping. The proportion of children that experiences corporal punishment decreases with age. However, at age 15, the proportion of adolescents that experiences slapping is still around 20%. Five to eight per cent of children and adolescents are at least occasionally beaten with an object, without any clear trend over age.

At the beginning of primary school, more than half of the children experience physical violence at home.

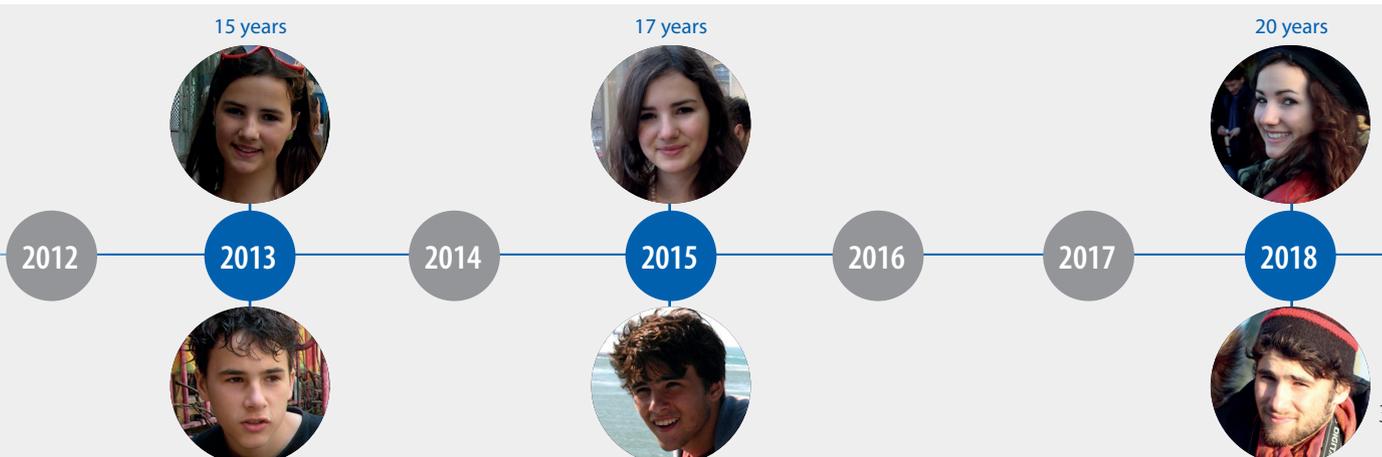
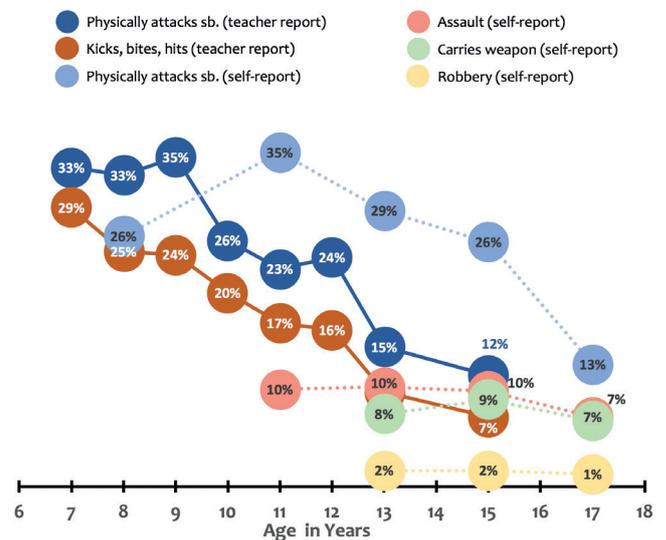
Experiences of parental violence, 7-11 parents, 11-17 self-reported experiences



ACTIVE USE OF FORCE

The data shows a similar decrease with age in respect of active use of force. The normative development over the life course is characterised by an increasing control over physical aggression. At the beginning of primary school, teachers observe that about one third of children physically attack others. This proportion steadily drops to about 12% as they get older. However, we also found some increase between the ages of 9 and 11 according to the children's own information. Possibly, this suggests that violent conflicts are more likely to occur away from the watchful eyes of the teaching staff. From age 11 onwards, the participants were also asked about perpetrating assaults leading to bodily injury; from age 13 they were asked about whether they wore weapons or committed robberies. The results show that between ages 11 and 17 about 10% of the adolescents were involved as perpetrators in a bodily injury. Male adolescents are about five times more likely to carry weapons than females, and they are twice as likely to be involved in bodily injury.

Physical aggression and violence according to teacher's assessment and personal information of study's participants



THE CONSEQUENCES OF VICTIMISATION EXPERIENCES

Victims of bullying, assault, robbery or sexual harassment experience multiple negative consequences. These include anxiety, depression and low self-esteem. However, victims of violence also have an increased risk of showing violent behaviour. This is well documented by research, but we have a limited understanding of why this is happening. Dr Margit Averdijk (University of Zurich) and Prof Jean-Louis van Gelder (University of Twente) have therefore examined cognitive mechanisms that may account for this link [19].

The central idea of this study was that victim experiences can lead to feelings of anger, injustice and revenge. These feelings can make young people think more positively about their own violence. We therefore presented the study participants with a scenario of a violent encounter and then asked them to imagine being in the role of the perpetrator. For example, they were asked if they would feel good

about acting violently or if they would be ashamed of such behaviour. We found that prior victimisation changed the way young people at the age of 13 thought and felt about violence. The victims felt less shame when thinking about using force themselves. They considered violence to be less serious and were more likely to believe that their friends would admire them if they acted in a violent way against other peers. These cognitive shifts were then associated with an increased own perpetration of violence at the age of 15.

Our findings suggest that psychosocial care for victims should pay more attention to feelings of anger and retribution that may be associated with the victimisation experience. This way, treatment can potentially prevent future acts of violence and help young people cope constructively with their often humiliating victimisation.

POSITIVE DEVELOPMENT FROM CHILDHOOD TO ADULTHOOD

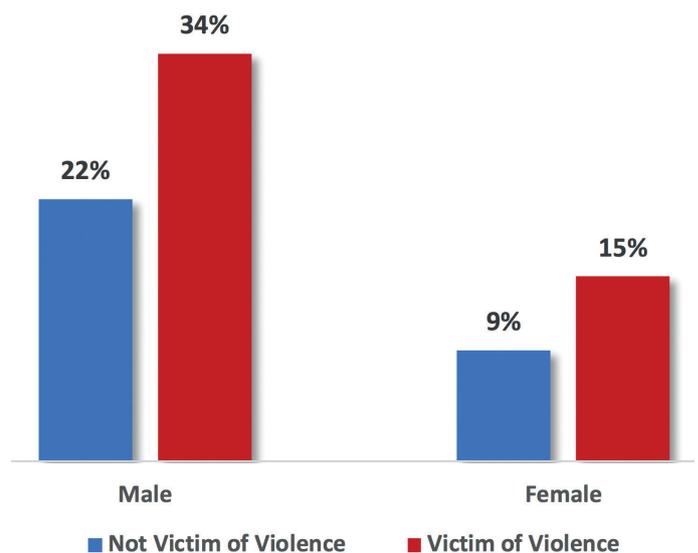
One explanation for the tendency towards decreasing physical violence with increasing age is that most children acquire social skills as they grow up. These include trust in others, compassion, willingness to help, empathy and the ability to distinguish right from wrong. z-proso addresses the question of how such competences can help prevent problem behaviour and favour a positive development.

In the second year of the project, for example, we measured trust using a sociometric approach. All children in a class indicated to what extent they trusted each other to keep a promise. The responses were used to calculate a value for trustfulness and trustworthiness for each child in the class. These values were used in a study led by Prof. Tina Malti (University of Toronto) to investigate whether lack of trust can predict the development of aggressive behaviour up to the age of 10 [26, 36].

The analyses show that around 4% of children followed a developmental pathway characterised by persistently high aggressiveness. The vast majority of children, in contrast, consistently showed no or low aggressive behaviour. Not surprisingly, aggressive children were considered less trustworthy and less likely to trust other children.

However, there was also an unexpected finding: a group of 9% of children were classified as 'non-aggressive' by the teacher at the beginning of primary school, but showed an increasing aggressive tendency up to age 10. Their trend notably contrasted with a group that remained non-aggressive throughout. Although the teachers saw no differences between the children in these two groups at the beginning of primary school, we found that their levels of trust differed

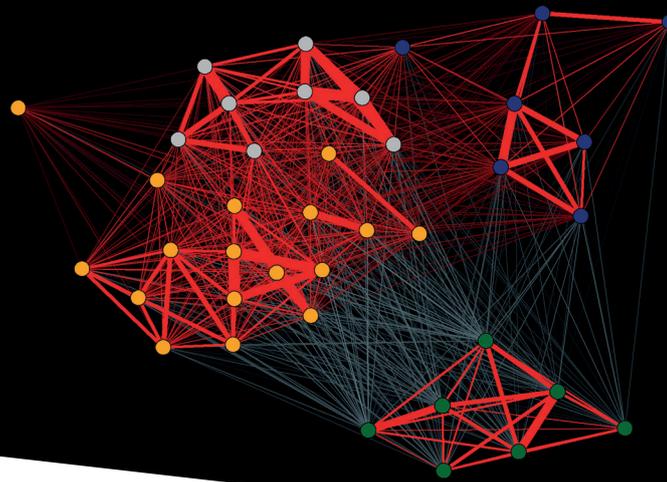
Proportion of 13-year-old 'victims' and 'non victims' of violence that feels 'good' about the idea of hitting back when provoked.



significantly: the children with increasing aggressive behaviour in the first four years of primary school were less trusted by other children and, conversely, were also classified as less trustworthy. Thus, trust deficits appear to be a possible cause for the development of aggressive developmental pathways.

A lack of trust is an early cause for aggressive developmental paths.

Network of 39 symptoms of psychosocial health at the age of 7. Green = prosocial behaviour; yellow = aggressive behaviour; grey = ADHD symptoms; blue = internalising problems. The lines represent the strength of the relationship: red lines = positive relationship, grey lines = negative relationship.



DEVELOPMENT OF PSYCHOSOCIAL HEALTH

A behavioural problem rarely comes alone. It is therefore important to improve the understanding of interactions and common causes behind various symptoms of impaired psychosocial health. This includes signs of hyperactivity, lack of impulse control, anxiety, depressive moods, aggressiveness and low empathy with others. One of z-proso's areas of research revolves around these dynamics of psychosocial health in a child's life course: What are the different pathways of psychosocial health from childhood to adulthood? How stable are symptoms of behaviour difficulties over time? And how do different symptoms interact with each other?

In a series of studies led by Dr Aja Murray (University of Edinburgh), we investigated the extent to which a large variety of symptoms of impaired psychosocial health are represented by one overarching factor [23], which is referred to in the scientific discussion as the 'p factor'. Our research question was whether the various symptoms of impaired psychosocial health separate into clearly distinguishable and specific syndromes, or whether the symptoms tend to overlap more and more because difficulties reinforce each other over time.

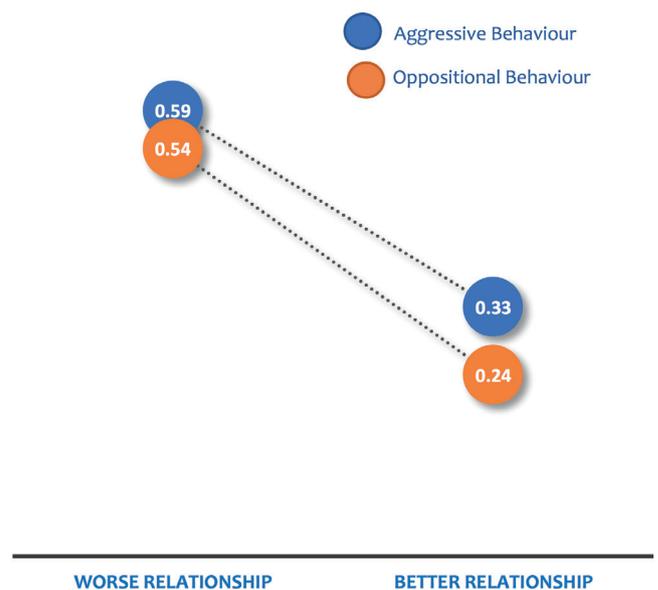
LIFE EVENTS AND TURNING POINTS

In the life of every human being there are critical life events that can redirect developmental pathways in a positive or negative way. These comprise encounters with peers and adult role models. They are particularly important in childhood and adolescence, and can give a new direction to the thinking and acting of an adolescent. z-proso investigates the consequences of such life events, including research on the effects of teacher changes.

Teachers play an important role in the lives of adolescents. Teachers can be experienced by children as supportive and motivating, but also as threatening or rejecting. In a study published in 2017 under the direction of Dr Ingrid Obsuth (University of Edinburgh), we investigated how the quality of the relationship between child and teacher affects a child's behaviour in the following years [16]. We took advantage of the fact that in the Canton of Zurich all children change teachers when they enter the fourth primary school class, typically at the age of 10. Some children were able to establish a more positive relationship with the new teacher, while others experienced the change of teacher more negatively.

The analyses confirmed an overarching dimension of psychosocial health ('p-factor') in all age groups from 7 to 15 years of age. However, the results showed neither a trend towards increasing differentiation nor towards increasing overlap during the period of life studied. The existence of an overarching p-factor has important implications for practice: prevention strategies should not only address specific symptom areas with targeted interventions, but also pay attention to promoting psychosocial health as a whole.

Level of problem behaviour at the age of 11. Comparison of children with a better and worse relationship with the new teacher.



Prevention should be considered at all stages of life to promote psychosocial health as a whole.

Analyses showed that the quality of teacher-pupil relationship has a lasting influence on problem behaviour. Children who switched to a positive relationship in the fourth year showed less aggressive and oppositional behaviour, as well as more prosocial behaviour in subsequent years. Some of these effects could still be found at the age of 15.

The findings illustrate the great importance of a supportive attachment to the teacher, who can be a crucial adult role model outside the family. They show that such relationships can be a protective factor that can prevent the consolidation of behavioural problems in adolescence.

THE ROOTS OF VIOLENT BELIEFS IN TEENS

z-proso pays particular attention to the cognitive processes surrounding violence: do children expect admiration or are they ashamed when they fight back after being provoked? How do young people perceive a 'real man'? How often do they have violent ideations? How do such patterns of perception change over the life course?

One aspect examined by Prof Amy Nivette (University of Utrecht) is the emergence of extremist attitudes in favour of violence in adolescence. To investigate this question, participants at the age of 17 were asked, for example, how right or wrong it was to fight injustice with violence or to support violent groups [14].

In our search for the roots of violent attitudes, we found that 17-year-old adolescents from fragile states – i.e. states in which conflict, inequality and repression are building up – are more likely to advocate political violence. And this was true even when they were born in Switzerland.

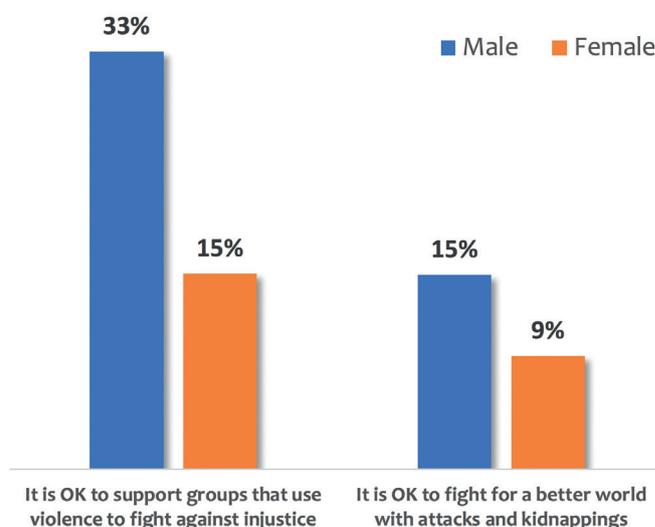
However, their origin from a global centre of conflict already changes the patterns of perception of 15-year-old adolescents. This includes a tendency to relativise legal norms and to justify violence in general. This 'legal cynicism' is partly a reaction to the reality in the family's country of origin, but it is also a consequence of social exclusion experiences and little self-control [27].

THE EFFECTS OF INTERVENTIONS

Two preventive interventions, chosen because they were based on scientific evidence, were implemented during the first three years of the project in collaboration with the School and Sports Department of the City of Zurich. The goal was to support social skills at an early stage in order to prevent behavioural problems at a later stage [52]. The programme for positive parenting of children and adolescents Triple P was administered as a group course during the first school year. It was offered to parents not only in German, but also in Albanian, Turkish, and Portuguese. PATHS, the programme aimed at promoting social skills in schools, was translated specifically for the study from the original English language and slightly adapted to fit the new environment. The teachers delivered PATHS during the second school year. The participating schools were randomly assigned to an intervention group and a control group.

A supportive relationship with a teacher can prevent the consolidation of behavioural problems.

Proportion of adolescents that agree 'somewhat' or 'fully' with two statements on the acceptability of violence to achieve political goals.



If everything comes together – male gender, a history of acceptance of violence, lack of problem-solving skills, cynical attitudes towards the law and origin from a fragile state – then the risk of extremist attitudes increases considerably.

This has consequences for prevention policy. For example, our findings suggest that measures should aim to promote civility as part of political socialisation as early as childhood and adolescence.

The evaluations of the effects of the two interventions have not yet shown any clear, significant positive short- or long-term effects. For example, the extent of aggressive behaviour according to the teacher's assessment has similarly decreased among children and parents who were offered the programme and among children and parents who were not offered the programme. Two years after the PATHS

Measures should encourage civility as part of political socialisation as early as childhood and adolescence.

intervention, the social competence training had a positive effect on aggression and impulsivity, but the effect could not be maintained [45]. Neither short- nor long-term consistent effects could be found for the parent training programme [39, 45].

The results show that prevention programmes do not always achieve the desired effects. In hindsight, the programmes should have been combined with measures that specifically target children with a high exposure to risk factors. It is conceivable that longer-term implementation of PATHS over several years could lead to more sustainable effects.

CONTACT WITH THE YOUTH JUSTICE SYSTEM

In Switzerland, criminal responsibility begins at age 10. However, the Swiss Juvenile Criminal Law, which covers all persons from age 10 to 17, prioritises prevention, protection and education over punishment. The z-proso study offers an opportunity to better understand the involvement of young people with the youth justice system.

The RIS inquiries were carried out at the Juvenile Prosecution Supervision Office of the Canton of Zurich in the spring and summer of 2017. All files relating to the consenting participants were coded according to a detailed scheme.

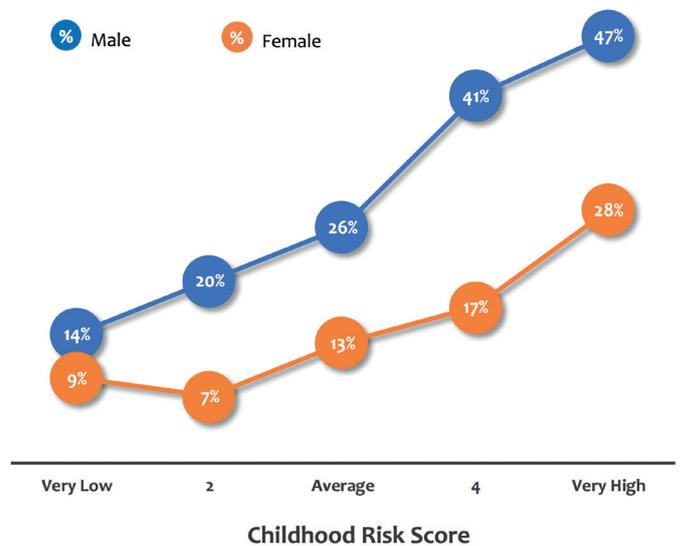
At age 17 we therefore asked the z-proso study participants for informed consent to retrieve, for the scientific purposes of our study, any entries in the Legal Information System of the Canton of Zurich (RIS in German); 1,275 young people agreed, corresponding to 97.6% of all participants in the seventh survey wave.

Initial analyses show that a substantial proportion of study participants is known to the Juvenile Prosecution Offices. Among the 1,275 adolescents included in the search, 294 were registered in the Legal Information System as defendants. This corresponds to 23% of all adolescents. However, there are considerable gender differences: 31% of males are recorded as a defendant, in comparison to only 15% of females.

CHILDHOOD RISK FACTORS

Can the likelihood of a youth justice record be predicted on the basis of earlier childhood risk factors? The answer to this question is critical for a developmental prevention policy. In 2010, Dr Ribeaud and Prof Eisner developed a childhood risk indicator based on the characteristics of children and their social environment while they were aged 7 to 9 years [47]. It includes, for example, information on child problem behaviour, personality traits such as low self-control, maternal smoking and alcohol use during pregnancy and parenting practices such as corporal punishment and lack of supervision.

Percentage of study participants with a record as defendants at the Canton of Zurich's Juvenile Prosecution Supervision Office, by childhood risk score and gender



This risk indicator is strongly linked to the probability of a criminal proceeding. Among males who had a very low risk score between the ages of 7 and 9 years, 14% are recorded as the defendant in the RIS. On the other hand, the probability is almost 50% among those male adolescents who were estimated to be at a high risk as a child. In female adolescents there is a similar rise from 9% to 28%, with an increasing exposure to risk factors. However, their probability of being recorded in the RIS-system is consistently lower than that of male adolescents.

CHARACTERISTICS OF YOUNG DEFENDANTS

The Swiss Juvenile Criminal Law prioritises prevention and integration over punishment and deterrence. The data collected as part of the z-proso study can support this goal by providing unique insight into the needs of young people known to the Youth Justice System.

Association between selected characteristics of study participants at age 15 and a record in the Legal Information System as defendants.

Characteristic	Male	Female
Low trust	.142	.124
Low self-control	.238	.189
Legal cynicism	.209	.147
Disciplined at school	.267	.079
Truancy, reported by teacher	.306	.184
Poor bond with teacher	.142	.162
Violent and pornographic media consumption	.266	.234
Deviant friends	.253	.205
Substance use	.250	.163

Note: Pearson correlation coefficients, all associations significant at $p < .05$.

Findings based on initial analyses show that adolescent defendants known to the youth justice authorities are substantially more likely, at age 15, to have challenging individual characteristics, school difficulties, and a generally problematic lifestyle. They also tend to lack trust in others, to have lower self-control and to be more cynical about the rule of law. At school, they are more likely to have been disciplined by the head teacher, to have played truant and to have a poor bond with their teacher. In their leisure time, they are more likely to engage with violent and pornographic media contents, to associate with deviant peers and to consume both legal (but harmful) and illegal substances.

Planned further analyses will provide more detailed insights into the relationship between child development and contact with the Youth Justice System. Important questions include, for example:

- To what extent is it possible to predict the risk of later contact with the Youth Justice System in adolescence, based on information available in the first years of primary school?
- What are the characteristics of the small group of serious and multiple youth offenders who are responsible for the majority of cases?
- Do the risk factors for different types of offending or for male and female offenders differ or are they predominantly the same?
- What are the effects of contact with the police and law enforcement agencies in youth on behaviour, employment and social inclusion in early adulthood?

OUTLOOK: INNOVATIVE RESEARCH AND INTERDISCIPLINARY COOPERATION

The successful completion of the survey of 20-year-old participants in September 2018 has laid the foundations for a continuation of the longitudinal study. In the coming years, the collected data will provide valuable information on the transition from adolescence to early adulthood. Furthermore, we will be able, for the first time in Switzerland, to investigate in detail which family, school and psychological processes in a young person's life course predict the probability of criminal offending.

Over the past 10 years, z-proso has developed an international network of researchers in which innovative interdisciplinary scientific questions on the interaction between the social environment and individual development are addressed. Therefore, the z-proso international research network zIReN was founded in 2016. Today, it comprises 32 researchers from psychology, sociology, criminology, economics, neuroscience, political science, and psychiatry at 14 universities worldwide, with particular emphasis on the promotion of young researchers.

Since z-proso joined the Jacobs Center for Productive Youth Development of the University of Zurich, interdisciplinary cooperation within the University of Zurich has also been systematically promoted in the form of independent add-on studies. Currently, there are project collaborations with the Institute of Sociology, the Department of Economics, the Institute of Psychology and the Psychiatric University Hospital.

- Under the direction of Prof Boris Quednow (Institute of Psychology and Psychiatric and University Hospital) and Prof Lilly Shanahan (Institute of Psychology), the participants were invited to give a small hair sample. Hair contains traces of metabolites that allow inferring on blood concentrations of certain hormones (e.g. the stress hormone cortisol) and of almost all psychoactive substances for a period of about three months. One of the aims is to improve the understanding on how experiences in childhood and adolescence can affect stress levels in young adults.
- In a cooperative project with research groups led by Prof Michael Shanahan (Institute of Sociology) and Prof Todd Hare (Department of Economics), 500 study participants were invited to an additional project. On the one hand, this includes a blood analysis to investigate whether mobbing experiences in children and adolescents have an influence on the subsequent expression of certain genes. On the other hand, experimental tasks are carried out with the volunteers, whereby their brain activity is examined using fMRI scanners. Through the unique combination of longitudinal study data and experimental research, the research group aims to understand how decision-making processes in young adults are influenced by previous experiences in life. The results of these studies may help to develop better interventions that support positive development in adolescence and early adulthood.

FURTHER INFORMATION

Sample

The target population of the study is made up of all children from the city of Zurich who entered the first class of state primary school in 2004. Sampling and allocation to the four experimental conditions were carried out at school level. Initially, 56 primary schools with 114 first classes were randomly selected using a sampling procedure stratified by school area and school size. Subsequently, these schools were randomly assigned to four experimental conditions: the "PATHS condition", the "Triple P condition", the "combined PATHS/Triple P condition" and the "control condition", each of which comprised 14 schools.

Participation rates

In autumn 2004, 1,675 children were admitted to the first year of the selected primary schools. The parents of 1,361 children (81%) agreed to their child's/children's participation in the study. 1,240 mothers and fathers (74%) were willing to be available for interviews themselves. Since then, a very good participation range of 69% to 86% of the target group has been achieved across the survey waves. Over 94% of the 1,675 young people took part in at least one survey wave. At the age of 20, with 1,180 participants, 70% of the target group could still be involved in the study. This high participation rate is the basis for making statements about the development of all young people in this age group in Zurich. As a consequence, the young people participating in the study largely reflect the youth population in Zurich today.

Institutional affiliation and funding

Since 2017, z-proso is based at the Jacobs Center for Productive Youth Development at the University of Zurich. In previous years, the project was affiliated to the Institute of Education at the University of Zurich until 2010 and then to the Chair of Sociology at ETH Zurich.

The Jacobs Foundation and the Swiss National Science Foundation (SNSF) have provided long-term financial support for the study since 2003, initially within the framework of the National Research Programme 52. In the first project phases, the City of Zurich also financed the feasibility study and the implementation of the prevention programmes. In addition, the Swiss Federal Office of Public Health, the former Swiss Federal Office for Migration, the Department of Education of the Canton of Zurich, the Julius Bär Foundation and the Visana Foundation have made considerable contributions to the execution of individual project phases. From 2017 to 2020, z-proso is mainly funded by the SNSF as a national research infrastructure.

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For a complete list, please visit www.jacobscenter.uzh.ch/en/research/zproso.html

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