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Mogens Nygaard Christoffersen

CHILD MALTREATMENT, BULLYING IN SCHOOL AND SOCIAL SUPPORT

A SOCIAL PSYCHOLOGICAL STUDY OF SELF-ESTEEM AND SUICIDAL BEHAVIOR BASED ON A NATIONAL SAMPLE OF YOUNG PEOPLE

DEPARTMENT OF CHILDREN AND FAMILY

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Child maltreatment, bullying in school and social support:
A social psychological study of self-esteem and suicidal behavior based on a national sample of young people[1]

Mogens Nygaard Christoffersen

SFI – THE DANISH NATIONAL CENTRE FOR SOCIAL RESEARCH[2]

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Abstract

The study focuses on the individual and the group to explain how the suicidal thoughts, and suicidal threats or attempts of individuals are influenced by other people. The research questions are: Why have some children, who are or have been exposed to maltreatment, developed resilience, while other children haven't?

The study is based on standardized personal interview with a national sample of 3,000 young people, supplemented with prospective longitudinal register data. The hypotheses are that the adolescents who have experienced child maltreatment during childhood but also had experienced supportive significant others have developed resilience.

The study confirms that social support for a great many of the young adults reduces the risk of low self-esteem and suicidal ideations even when they have experienced poor parenting with the destructiveness of psychological maltreatment and sexual abuse. While being offer for bullying increases the risk of suicidal thoughts and low self-esteem, when accounted for other risk factors.

[1] An earlier version of the paper was presented at the Danish Sociologist Congress, Copenhagen, 22-23 January, 2010.

[2] SFI – THE DANISH NATIONAL CENTRE FOR SOCIAL RESEARCH, HERLUF TROLLES GADE 11, DK-1052 COPENHAGEN K, DENMARK, TEL (+45) 33 48 08 83, MC@SFI.DK WWW.SFI.DK

Summary
Background: This national study exploring childhood experiences of young people including their experience of maltreatment and the influence on their suicidal ideation and suicidal attempts. The correlates of the young people's present wellbeing and their upbringing conditions are explored to study the long-term consequences of maltreatment. When escape is impossible, the most damaging for the self-esteem is being psychological, sexual or emotional abused by parents or being bullied by significant others such as peers in school. The research questions are: Why have some children, who are or have been exposed to maltreatment, developed resilience, while other children haven't? Results tell us that it is because they have experienced social support, e.g. parents, grandparents, aunts, uncles, teachers, understanding peers, and others.

Purpose of the paper: The study focuses on the individual and the group to explain how the suicidal thoughts, and suicidal threats or attempts of individuals are influenced by other people. While most social psychology research tends to be centered on laboratory experiments the study is using a computational modeling and survey based on a national sample of young people. The hypotheses are that the adolescents who have experienced child maltreatment during childhood but also had experienced supportive significant others have developed resilience with a strengthened self. The assumption is still not yet well researched but it is worth to test in a longitudinal study.

The sample was a stratified random probability sample (N=2,980) of adolescents born in 1984. Children who have been in care (e.g. family-centered services or out-of-home care) were over sampled. The personal interviews were conducted as telephone interviews or residential interviews if telephone interviews could not been obtained. Information from registers from children's birth to 2007 was used to predict the risk of suicidal behavior and low self-esteem.

Crisis Support Scale (CSS) developed for adults was used to measure social support, while Rosenberg Self-Esteem Scale (RSE) was measuring the self-perceived self-esteem. Index for psychological maltreatment, physical or sexual abuse, and neglect were included in the standardised questionnaire.

*Key findings: C*hild maltreatment and especially psychological maltreatment and sexual abuse are damaging for the self-esteem and increases significant the risk of suicidal behaviour. The study confirms that social support for a great many of the young adults reduces the risk of low self-esteem and suicidal ideations even when they have experienced poor parenting with the destructiveness of psychological maltreatment and sexual abuse. Child maltreatment seems to influence both low self-esteem and suicidal ideation directly, but also indirectly through decreased social support and increased risk of being bullied in school.

Key references:
*1. W*erner, Emmy E. and Ruth S. Smith. 1992. *Overcoming the odds: high risk children from birth to adulthood.* Ithaca, N.Y.: Cornell University Press.

2. Myers, J. E. B., L. Berliner, J. Briere, C. T. Hendrix, C. Jenny, and T. A. Reid. 2002. *The APSAC handbook on child maltreatment.* Thousand Oaks: Sage Publications.

Key words: longitudinal study, bulling, self-esteem, suicidal behavior, in care.

Introduction

There are two competing research traditions or paradigms that to some degree counteract each other when it comes to explaining and preventing long term consequences of disadvantages during the formative years. One is based on research showing that the social processes in the family that are the most damaging for child-development are psychological maltreatment, physical abuse, sexual abuse and neglect. These processes result in long lasting reduced self-esteem, and damaged ability of social, emotional and cognitive functioning (Erickson and Egeland 2002). According to these researchers, child maltreatment increases the risk of permanent disablement of the adolescents. The sooner problems are discovered and measures are taken, the better chance of a positive result (Chaffin, Worley, and Lawson 1996).

This paradigm has been challenged by other researcher among these we find Werner & Smith (1992). They found in a study of children who grow-up under high risk disadvantages during their childhood on Isle of Kauai (Hawaii, USA), that most of the children did well as young adults despite the bad odds. A third of the 550 children had experienced chronically poverty parental alcoholism and mental disorder together with parental conflict, quarrels and separations. Relatively many of the children who had been exposed to severe disadvantages during adolescence showed emotional, intellectual, and school problems in the age of 10 years old (Werner et al, 1968), but the association between disadvantages during childhood and later well being were blurred out for the young adults. Parental care and other supportive adults are mentioned as the explanation on why some managed well despite the bad odds (Werner and Smith 1992). The question is if these result from a relatively poor American society in 1950s and the 1960s are applicable in a modern welfare society thirty years later. Many studies have explored the consequences of child maltreatment but only few studies has documented the long-term results, and knowledge about overcoming the odds are scarce (Backe-Hansen 2004;McGloin and Widom 2001;Rutter 1990).

The hypotheses are that the adolescents who have experienced child maltreatment during childhood but also had experienced supportive adults have developed resilience with a strengthened self. The assumption is still not yet well researched but it is worth to test in a longitudinal study.

Theoretical framework and measures

The consequences of child abuse and neglect has been systematic studied in the last fifty years (Bakwin 1949;Bowlby 1951;Kempe et al. 1962;Rutter 2000). In adolescents exposed to abuse and neglect it is found a significant high proportion of forms of social, emotional and cognitive problems e.g. hostility, aggression, learning difficulties, youth delinquency, suicidal behaviour, anxiety, depression, substance abuse, low self esteem, eating disorder and anti social problems (Egeland 1983;Erickson and Egeland 2002;Harts et al. 2002;Kolko 2002;Ricci 2000;van IJzendoorn and Juffer 2006). In a previous Danish study an increased risk of suicide attempts is found among young people exposed to parental mental illness, parental suicidal behaviour, and domestic violence (Christoffersen, Poulsen, and Nielsen 2003).

Only few studies has explored the long term consequences of abuse and neglect, and the terms ‘child abuse’ and ‘neglect’ are constituted by many very heterogeneous social relations and processes. Busby and others emphasize the importance of differentiation between neglect, abuse and violence, because the causes and effective interventions may vary between these social relations (Busby 1991). The pivotal terms are: physical, sexual abuse, physical neglect and psychological maltreatment (Myers et al. 2002).

Physical abuse is defined as an inflicted act causing physical injury to children or an act exposing children to risks of physical injury (Kolko, 2002). Suspected physical abuse requires a comprehensive evaluation and consultation by sub-specialists. The present study is based on interview with the possible offer based on concrete questions about the exposure to physical injuries.

The questions included items such as many bruises on several occasions, being threatened with a knife or a gun, being hit with a hard implement (e.g., coat-hanger, whip), or recorded bruises, bites, burns, broken bones, stab wound, head injuries (e.g., bleeding around the brain). In this way the study attempted to distinguish serious physical abuse from forms of physical chastisement. The items also include exposure of serious risks of potential injury e.g. throwing objects at the child.

Sexual abuse refers to sexually motivated behaviours involving children or sexual exploitation of children (Berliner and Elliott 2002).

A previous Danish study based on interview with 25 years old found that child maltreatment in the family seems to be one of the most significant risk factors for low self-esteem, suicide considerations, and suicide attempts, but low self-esteem and suicidal behaviour were also associated with a feeling of failure in school i.e. difficulty concentrating and being bullied together with problems associated with their present situation i.e. unemployment, no education or no vocational training (Christoffersen 1994). This elderly study did not include information about potentially social support that may have moderated the effects of disadvantages during the formative years.

Physical neglect (or neglect) is usually defined as inadequate clothing, inadequate nutrition, poor personal hygiene, failure to provide health care, unsafe household conditions, inadequate supervision, being left with older children of a certain age e.g. the caregiver not knowing of the child's whereabouts, leaving the child with an inappropriate caregiver or chronic truancy (more than 20 days during a year) e.g., if the child missed school frequently without any health reason (Dubowitz, 2000; DePanfilis, 2000; Macdonald, 2001).

In the present study we had to re formulate these items because 25 year old young adults may not remember these incidents; instead we formulated question about having too much responsibility and being left alone with inadequate nutrition, etc. as a child younger than 12 years old.

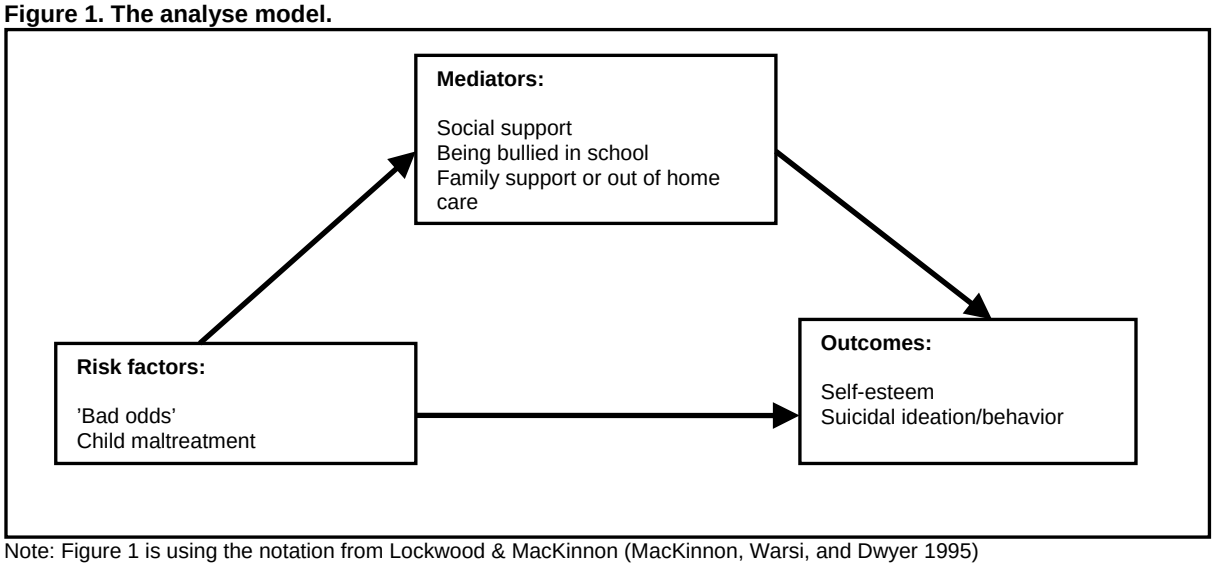
Psychological maltreatment was defined as "a repeated pattern of caregiver behavior or extreme incidents that convey to children that they are worthless, flawed, unloved, unwanted, endangered, or only of value in meeting another's needs" (Brassard, Hart, & Hardy, 1991; Erickson & Egeland, 2002). The present study sought to represent the conceptual traditions of psychological maltreatment constructs. The questions included items related to public humiliation, degrading, shaming or threatening to physically hurt, or abandoning the child.

Physical abuse (c.f. Dubowitz a, 2000).	A single-item dichotomous variable equal to 1 if at least one of the mentioned items had been affirmed in the self-reported personal interview. a. have you parents/stepparents spanked you with various objects e.g. a hanger or cane? b. have your parents/stepparents threatened you with weapons e.g. knife or hand gun? c. have they thrown object at you? d. have they made to strangle you? e. have they given you bit marks or burns? f. have they given you bruises after a punch, e.g. bruises, a black eye? g. have a practitioner noted broken bone, cut, burn, and bleeding around the brain caused by parents/stepparents? h. have you been beaten, kicked or exposed of violence that have resulted in bruises, hemorrhages or other physical damages caused by parents/stepparents?
Sexual abuse (c.f. Berliner & Elliott, 2002)	A single-item dichotomous variable equal to 1 if at least one of the mentioned items had been affirmed in the self-reported personal interview. a. have you experienced sexual abuse by a family member? b. have you been forced to sexual activity by parents or stepparents e.g. finger, flash, attempted intercourse, penetration, other sexual abuse?
Physical neglect (c.f. Dubowitz b, 2000).	A single-item dichotomous variable equal to 1 if at least one of the mentioned items had been in the self-reported personal interview. “Parents can have various opinions about when a child can take responsibility for obligations and conditions. Let us say when you were younger than 12 years old... a. did your parents/stepparents expect that you were responsible for boil-up? b. when younger than 12 did you go to school in dirty clothes because there were no clean clothing? c. was it up to you self to see a dentist regularly? d. when younger than 12 years did you between times experience repeatedly hunger because there was no one to prepare a meal or no food in the refrigerator? e. when you were younger than 12 years did you have to take care of younger siblings when your parents were out of home? f. when younger than 12 years old did you have to watch yourself when ill? g. did you have to call a doctor yourself when you were sick?”
Psychological maltreatment (c.f. Brassard & Hart, 2000).	A single-item dichotomous variable equal to 1 if at least one of the mentioned items had been affirmed in the self-reported personal interview. a. Verbal degrading attacks or humiliating speaks to you by caregiver e.g. called you names, stupid, lazy and useless? b. caregiver had degraded and humiliated you in public. c. Have caregiver threatened you to be kicked out of home? d. have you parents/stepparents threatened to physically hurt you e.g. beaten or be whipped? e. have your patents stepparents by their action told you that you were unwanted, unloved and worthless? f. have they consistently bullied you and criticizing your behavior?

Social support as a mediator

The assumption is, that the adolescents who have experienced child maltreatment during childhood but also had experienced supportive adults have developed resilience with a strengthened self-esteem. Bandura, Katz, Rutter and others describe the psychology of chance encounters in the meeting with another person and experience social support and compensatory relationships (Bandura 1982;Katz 1997;Rutter and Rutter 1993). Social support is seen as a possible mediator of distress among people exposed to various forms of distress. In many studies social support moderate the effect of distress on developing post-traumatic symptoms after experiencing e.g. combat, disaster, burn injury, and HIV (Elklit, Pedersen, and Jind 2001). Other studies explore the effect of supportive adults for a child's development of self-esteem after exposed to disadvantages during childhood. Among the supportive adults, who fostered trust acted as gatekeepers for the future, they found grandparents, elder mentors, youth leaders, members of church groups (Werner 1992).

Figure 1. The analyse model.



Note: Figure 1 is using the notation from Lockwood & MacKinnon (MacKinnon, Warsi, and Dwyer 1995)

Social support is defined as a social relation leading the individual to believe that he or she is cared for, loved, esteemed, and valued. The relationship is characterized as emphatic, understanding, of respect, and of constructive genuineness (Cobb 1976;Porritt 1979). Assessing a child's social support system could include e.g. helpful people, material aid or advice or counselling, empathic listening, assistance in problem solving, reassurance of worth, affirmation and protection (Belle 1989;Thompson 1995). In the study we use the Crisis Support Scale (CSS) developed for adults (Joseph et al. 1992;Joseph, Williams, and Yule 1992) that consider the core aspects of crisis support e.g. to have others who are willing to listen, who provide support in emotional and practical ways when necessary, and contact with others in a similar situation (Elklit, Pedersen, and Jind 2001;Lindgaard 2002).

Peer relationship as a mediator: Being bullied in school

Olweus defines bullying as negative actions directed at one individual and repeated over time e.g. unprovoked attacks, using social isolation, humiliation and ridicule, malicious rumours and name-calling (Nicol 2002;Olweus 1994;Olweus 1995;Olweus 2003). The resemblance with psychological maltreatment by parents is obvious. The destructiveness of bullying and association with low self-esteem or suicidal behaviour among the victims has been shown in several studies (Christoffersen

1996;Due and Holstein 1999;Nicol 2002;Rigby and Slee 1999;Rigby and Slee 1993;Smith and Sharp 1994).

Family support or out-of-home care
A variety of family-centred services and out-of-home care arrangements e.g. foster care, residential care in group-care arrangements are registered [3].

Outcome measures: Low self-esteem and suicidal behaviour
The theoretical assumption is that people reflect about their own self and their interaction with significant others and in this process they form a picture about their own capacity as an object. The self-esteem is seen as an important part of social and developmental processes of the self (Mead 1934;Rosenberg 1979). Since reports of early inadequate parenting are associated developing low self-esteem and a risk for depression in adult life, we hypothesise that low self-esteem could be an important consequence of child-maltreatment. The most common way of measuring self-esteem is the Rosenberg Self-Esteem Scale (RSE) which is measuring the self-perceived self-esteem (Rosenberg 1979). Reliability and validity of the scale has been tested in many studies and it correlates with Coopersmith's self-esteem inventory, SEI (Coopersmith 1967;Demo 1985;Lindgaard 2002;Martin et al. 1988).

Low self-esteem and suicidal ideation could be seen as overlapping outcomes since they are found to be strongly inter-correlated or low self-esteem could be seen as a precursor of later suicidal ideations. In the present study we will not be able to establish the time sequence of development of low self esteem and the formation of suicidal thoughts. Therefore we explore both outcomes to find any discrepancies between their earlier risk factors under the assumption that the outcomes may be partially or wholly redundant to each other.

A series of studies based on interview with high school students disclosed a large variance in numbers of suicide attempts, mainly because the answers were particular sensitive to how the questions were formulated, and secondly because of variations in attrition bias or selection bias. Incidence of suicide attempts varied from 2 percent to 15 percent in the age group 14 to 20 years (Bjerke, Svarva, and Stiles 1992;Jessen, Andersen, and Bille-Brahe 1996a;Jessen, Andersen, and Bille-Brahe 1996b;Mishara 1976;Mocicki 1989;Widmer 1979). None of the mentioned studies include information of medical treatment or hospitals admission as a result of the suicide attempt. Meehan and colleagues has estimated the rate between self reported suicide attempts and attempts resulting in hospitals admission as ten to one. They conclude that self-reported attempted suicide provides little information concerning the seriousness of the attempt (Meehan et al. 1992).

In the first stage, the present study addresses severe suicide attempts which lead to hospitals admissions according to registers. In these cases, the completed suicide and suicide attempts involved an assessment from a third party who is a medical expert with no prior knowledge of the persons or their families. Consequently, only severe suicide attempts will be included in this counting, and many suicide attempts which receive no medical attention will be lacking from the register based data base.

[3] Act on Social Services of 2009 § 52, 2009 [LBK nr 941 af 01/10/2009, Bekendtgørelse af lov om social service (Serviceloven), Indenrigs- og Socialministeriet].

In the second stage information about suicide considerations are based on four questions in the questionnaire. “Have you ever considered suicide or attempted suicide?” “Have you ever willfully taken overdoses (e.g. pills or other drugs)?” The question is repeated but in another context in the interview: “Have you yourself, or close family or one of your close friends threatened to commit suicide?” “Have you yourself, or close family or one of your close friends attempted suicide?” The two last questions are probed to specify if it is the interview person or some of the close friend and relatives (Table 2).

Outcome measurements of suicidal behaviour: First time suicide attempts and completed suicides according to registers.

	Outcome factor: suicidal behaviour
Attempted suicide	Self-inflicted harm according to hospitals admissions. The definition of suicide attempts also included behaviour that conformed to the following three conditions: (i) Suicide attempts that had led to hospitalization, (ii) assessment of the trauma being an act of self-mutilation according to the international statistical classification of injuries when discharged from hospital, (iii) the trauma had to be included in a specified list of traumas traditionally connected with suicide attempts: cutting in wrist (carpus), firearm wounds, hanging, self-poisoning with drugs, pesticide, cleaning fluids, alcohol or carbon monoxide, according to hospitals admissions in a psychiatric ward according to the National Patient Register and the Danish Psychiatric Nationwide Case Register. Included is also intentional self-harm according to hospitals admissions.
Suicide	Suicide according to the Causes of Death Register.

Note: more information about the database and definitions is found in the following: (Christoffersen and Lausten 2009;Soothill et al. 2009)

Method and data

The study is designed as a two stage project. In the first stage the young adolescents with bad odds are localized on the basis of register information about their childhood. The total birth cohort of all children born in 1984 is followed up to January 2006 (N=51,700). We compare the situation for the adolescents with suicidal behaviour (Table 1) according to registers with their contemporaries who haven’t made any such attempts. The controls (years at risk) were constructed by members of the total birth cohort who have not experienced the event in focus i.e. committed a suicide or suicide attempt from their 15th to 21st anniversary. Subject were excluded from the case group and the controls after the first attempt or if they hade died or emigrated. Pooling all non-event years of all individuals, the controls were made up of all the non censored person-years (Allison 1982). In a stepwise regression we find the most significant risk factors and estimate their parameters. These parameters are then used in the next stage to estimate the probability among those among the interviewed adolescents for attempting suicide for the first time or committing suicide.

In the second stage, the sample consists of 4,718 young people aged 24-25 born in 1984 and interviewed October 2008 to April 2009. The sample was constructed as a stratified random probability sampling across the country based on the personal identity numbers and national population registers. Only young people who have lived Denmark during their adolescence were included.[4] Children who have been ‘in care’ or at risk according to the files of local social workers were over sampled. Some of the sample (n=242) could not be interviewed because of handicap,

[4] Children were in the country 1st January 1985 and 1st January 2003 according to registers.

sickness, death, moved abroad, or language difficulties. The survey then obtained a 67% response rate among the remaining sample which measures up to 2,980 interviewed persons.

The duration of the interview was estimated to 43 minutes. The personal interviews were conducted as telephone interviews or residential interviews if telephone interviews could not been obtained. Experiences show that greater interviewer effect is found in case of personal interviews if embarrassing, social disadvantageous questions are asked (Christoffersen 1984). The personal interviewing in the homes was using a so called CAPI method (computer assisted personal interview). Since some of the questions could be seen as embarrassing or social labeling these were filled out on the laptop by the interview person himself/herself while the interviewer were waiting with no knowledge of neither the questions nor the answers given. The interview method has been used and evaluated in a similar British study exploring the same age group and studying the same issues as the present study (Cawson et al. 2000;Cawson 2002). The CAPI- method has been shown to give more honest answers in a study of the use and abuse of drugs (Brooker and Kelly 1996). After the interview, the interviewed persons were offered a telephone number to a help line with a professional psychologist[5].

Statistical analysis methods

In stage one, the study explores risk factors associated with the onset of suicidal behaviour in young people aged 15 to 21 on the basis of a prospective longitudinal study. The purpose is to find adolescents with bad odds according to information from registers. The study survey possible risk factors and protective factors in order to evaluate if altering the conditions of children's upbringing, structural factors, geographical segregation, or individual resource deficits could reduce their suicidal behaviour (first time suicide attempts and completed suicides). These issues are being examined using data gathered during a longitudinal study of a total cohort of more than 51,700 young people born in 1984. A discrete-time Cox-model is used to analyze associations between the relatively rare response events and the relatively rare risk factors in order to find the most significant precursors of suicide and first-time suicide attempts and estimate the risk factors' attribution to the total number of early onset of suicidal behaviour (Allison 1982). Series of risk factors were included in the logistic regression model covering the following areas: 1) disadvantaged parenting e.g. parental substance abuse, parental mental illness, domestic violence, parental suicidal behaviour, battered-child-syndrome, child 'in care', family separation, and teenage motherhood. 2) Structural factors relating to the family during adolescence e.g. educational qualification of parents, parental employment status and poverty. 3) The geographical segregation e.g. rented housing vs. self-owner 4) Individual resource deficits e.g. youth unemployment, school level, poverty, psychiatric disorder, imprisonment, substance abuse (drug addiction, and alcohol abuse), and sever physical diseases in the preceding year before the first suicide attempt or suicide.

In second stage, risk is also seen as a probability for an event (or outcome) within a specified population. In this stage the outcome is suicidal behaviour (e.g. suicide considerations or suicide attempts). The outcome is binary – either it occurs or it does not occur. We then define a risk factor (beta in the model below) as a correlate that is shown to precede the outcome of interest (Kraemer and Lowe 2005).

[5] Two per thousand used the help line. After the talk with the helpline an appointment was arranged with a professional psychologist in their own local region.

The second stage is based on a stratified sample with two strata, one include persons who had been 'in care' or in risk according to the files of local social workers, and the other stratum consist of the others from the birth cohort. A dummy is constructed; C is a dummy variable equal to 1 if a person has been 'in care' or in risk, else equal to 0. This variable will be used to test if there are overall differences between the two strata. The product $\varphi C\mathrm{x}_\mathrm{i}$ is the last vector, which gives additional information if the children 'in care' add any significant extra information explaining the outcome. This term will be used to test the interaction effect, if any of the risk factors are different for children who had been 'in care' from children who hasn't. Maximum likelihood estimators for the regression models are then calculated, where α (Alfa) is the intercept.

The overall exposure to risk factors among adolescents and young adults is presented in Table 3-6 in the column labelled: 'estimated % in birth-cohort'.

The purpose of the present analysis is to locate relevant risk factors and describe both the strength (odds ratio) of different risk factors and the overall exposure of risk factors.

$$\log \frac{P_i}{1 - P_i} = \alpha + \beta \mathrm{x}_\mathrm{i} + \delta C + \varphi C\ \mathrm{x}_\mathrm{i}$$

Results: stage one

In the study from Isle of Kauai (Hawaii, USA) children with the bad odds grew-up under high risk disadvantages during their childhood. They had experienced chronically poverty parental alcoholism and mental disorder together with parental conflict, quarrels and separations. In the present study we use the register information to find similar risk factors that locate adolescents with bad odds. The method is to explore risk factors associated with the onset of suicidal behaviour in young people aged 15 to 21.

The purpose is to estimate the odds ratio for suicidal behaviour according to information from registers (table 1). The study survey found the following significant risk factors and protective factors for suicidal behaviour (first time suicide attempts and completed suicides): 1) disadvantaged parenting e.g. parental mental illness, parental suicidal behaviour, battered-child-syndrome, child 'in care', family separation, and teenage motherhood. 2) Structural factors relating to the family during adolescence e.g. parental employment status. 3) Individual resource deficits e.g. school level, poverty, psychiatric disorder, imprisonment, substance abuse (drug addiction, and alcohol abuse), and sever physical handicap in the preceding year before the first suicide attempt or suicide.

The estimated parameters are used in the second stage. Each of the interviewed young adults are followed through the resisters for each calendar year under focus and the combination of the value of the risk factors and the parameter values gives each individual an estimated accumulated probability of suicidal behaviour. In this way we find the individual with the "bad odds" on a probability scale from 0 to 52 percent. The individual estimated probability is then used as a parameter in the model which gives us the possibility to test if social support plays a significant mediator effect and answer the questions: Why have some of the children done well as young adults despite the bad odds; and why have some of the children developed resilience while other children exposed to maltreatment hasn't? Is it because they experienced supportive adults e.g. grandparents, aunts, uncles, teachers, others?

Tabel 1. Who have bad odds? Risk factors for first time suicide attempt or suicide 15 to 21 years old persons born in 1984. Adjusted parameter estimates based on the final stepwise logistic regression.

	Type	Parameter estimates	Standard Error	Wald Chi-Square	P
Intercept		-8.1208	0.1755	2140.41	<.0001
age16		-0.0631	0.1412	0.20	0.6550
age17		0.1819	0.1354	1.80	0.1793
age18		0.0526	0.1456	0.13	0.7177
age19		0.0072	0.1486	0.00	0.9612
age20		-0.1571	0.1541	1.04	0.3082
Parental mental illness	III	0.2416	0.1000	5.84	0.0157
Parental suicidal behavior	III	0.3556	0.1359	6.85	0.0089
Child 'in care'	II	0.4788	0.1033	21.47	<.0001
Child abuse or neglected	II	0.3634	0.1219	8.89	0.0029
Mother teenager	II	0.2908	0.1360	4.57	0.0325
Family separation	II	0.2634	0.0880	8.95	0.0028
Parental unemployment >21 weeks	II	0.4482	0.1038	18.66	<.0001
Parental disability pension	II	0.2784	0.0970	8.24	0.0041
Not graduated	II	0.5374	0.1117	23.16	<.0001
Poverty (<50% median income)	I	0.5714	0.1056	29.29	<.0001
Incarcerated	II	0.8528	0.1690	25.48	<.0001
Psychiatric disorder	II	1.1927	0.1077	122.55	<.0001
Substance abuse	II	0.8131	0.1400	33.72	<.0001
Severe handicap	II	0.4898	0.1847	7.03	0.0080
Girls vs. boys	III	0.9657	0.0859	126.33	<.0001

Note: Type I: exposed to risk factor the previous year. Type II: exposed to risk factor at least one of the previous years. Type III: risk factor observed for at least one of the years under investigation. The total number of suicide or first time suicide attempts in 1984-birth cohort is 685 according to hospitals admissions; and the total number of person-years is 322,419. The total birth cohort is more than 51,700, and the hospitalised suicide attempts among this birth cohort is estimated to 1.3 per hundred. A precise definition of risk factors is published in following articles: (Christoffersen, Keith Soothill, and Brian Francis 2007;Christoffersen and Lausten 2009).

Results: stage two

The study confirms our own notion that an exact estimation of suicidal behavior or suicidal ideation meets insurmountable obstacles. The wording of questions in a personal interview gives great variations, and record about suicide attempt in hospitals is only the top of the iceberg. While the number of suicide attempts or suicide among adolescents were 1.3 per hundred, interview about suicide considerations and suicide attempts expose ten time higher incidence: 14 per cent among adolescents express such considerations (Table 2). As it appears from the answers there are divergences between the different wording of the same question and differences between the contexts of the questions. Although, the demarcation line is somewhat blurry between those who have considered or attempted suicide and those who have not; it may not influence our analysis significantly because we intent to explore the odds ratio of suicidal behavior compared to those without suicidal behavior for series of risk factors. We do not intent to give an absolute number or incidence of suicidal behavior since such an estimation depends heavily on the exact wording of the

questions and the social contexts of the interview. Instead we focus on the relative risk or odds ratio.

Table 2. Suicidal behaviour in a birth cohort interviewed at the age of 24/25 years old

	Number in sample (n=2,980)	Estimated percentage in birth-cohort
Have you ever considered suicide or attempted suicide?		
a. Yes, considered but not attempted	397	11.0
b. Yes, attempted	164	2.9
c. Have you ever deliberately taken overdoses (e.g. pills or other drugs)?	114	2.1
d. Have you threatened to commit suicide?	175	3.8
e. Have you attempted suicide?	186	3.2
At least one affirmative answer (a-e)	576	14.2

Note: The estimated percentages of suicidal behavior in the 1984 birth cohort are based on the weighted stratified sample. The question: Have you ever attempted suicide? Have been posed in a different context twice during the interview with different results (item b and e).

Previous studies tell us that the most damaging family conditions seemed to be psychological maltreatment, physical/sexual abuse, and neglect. A Danish study among a sample of 1,138 children receiving family services in order to support children at risk showed that the exposed children were more often in a depressive state, unhappy, socially isolated, or they showed an eating disorder, inadequate or under nutrition, suicidal tendencies, lack of concentration, or disturbed behaviour, compared to those children who were not exposed to abuse and neglect (Christoffersen 2002;Christoffersen and DePanfilis 2009). The mentioned risk-factors are often absent from registers and in many cases only obtainable through personal interviews.

Risks of low self-esteem

The study shows a significant association between having ‘bad odds’ according to individual history of disadvantaged parenting, structural factors (parental unemployment, poverty) or individual resource deficits according to registers. The ‘bad odds’ seems to increase the risk of low self-esteem; for each step on the probability scale of ‘bad odds’ the probability of low self-esteem increases (adjusted odds ratio: 1.1; model 1). However, this association vanishes when other risk factors from the personal interview are taken into account.

It could be argued that ‘bad odds’ were constructed to give odds about suicidal behavior and not calibrated to predict low self-esteem. Besides, the self-reported poor parenting was more closely related to low self-esteem than the more proxy risk factors in the registers. Self-reported incidence of psychological maltreatment and sexual abuse in the family turn out to be the most telling risk factors (see model 2, Table 3).

The adjusted odds ratio for low self-esteem was 8.0 for sexual abuse. Fortunately only about 1.2 percent was exposed to this assault and the Wald chi-square is less than the contribution to low self-esteem from psychological maltreatment. The Wald-chi-square reflects both the odds ratio and the number in population exposed to the risk-factor. The relatively high Wald-chi-square for psychological maltreatment is a product of the fact that psychological maltreatment is far more widespread (about 22.7 percent in the population) although the odds ratio is far less than for sexual abuse (adjusted odds ratio: 3.6). Sexual abuse seems to be extremely damaging for the self-esteem for those exposed to these assaults. The Wald-chi-square tells us that low self-esteem can be caused through other degrading and more widespread social relations as well.

Table 3. Child maltreatment and low self-esteem, I

	Low degree of self-esteem: Number In sample	Estim. % in Birth-cohort	**Model 1** Unadjusted single factor			**Model 2** Adjusted stepwise		
			Odds ratio		Wald Chi-square	Odds ratio		Wald Chi-square
Child maltreatment: βx_i								
a. Bad odds (probability scale)	N/a	N/a	1.1	***	18		Ns	
b. Physical abuse	28	5.6	2.8	***	21		Ns	
c. Sexual abuse	15	1.2	6.7	***	38	8.0	***	14
d. Psychological maltreatment	85	22.7	4.6	***	69	3.6	***	46
e. Physical neglect	48	14.9	2.5	***	25		Ns	
f. Gender: women	85	47.8	2.0	***	13		Ns	
g. **'in care'** δC	74	6.3	3.2	***	43		Ns	
Interaction variables: $\varphi C x_i$								
h. Physical abuse and 'in care' (b*g)	22	1.3	3.4	***	23		Ns	
i. Sexual abuse and 'in care' (c*g)	10	0.4	5.8	***	56	0.2	*	5
j. Psychological maltreatment and 'in care' (d*g)	52	3.0	4.4	***	63		Ns	
k. Physical neglect and 'in care' (e*g)	32	1.9	3.5	***	34		Ns	
l. gender (women) and 'in care' (f*g)	48	2.8	4.2	***	57	3.6	***	28
Total	135							

Note: Ns, Not significant; N/a, Not applicable; * p<0.05; ** p<0.001; *** p<0.0001; Note: The estimated percentages of risk factors in the 1984 birth cohort are based on the weighted stratified sample.

Being 'in care' seems not to influence the self esteem when other risk factors were included in the models. An exception is that the girls 'in care' have an extra high risk of having a low self-esteem. It seems as if the adolescents who have been sexually abused have benefited from being 'in care'. Their odds ratio: 0.2 is less than 1, but the cases numbers are limited and percussions must be taken when these figures are interpreted.

Then the mediator variables such as social support (Crises support scale, Css) or the opposite being bullied in school are included into the model. Both turns out to be extreme significant associated with low self-esteem also when all the other risk factors were taken into account. Social support can explain why some of the adolescents do not have a low self-esteem although they have experienced poor parenting; if social support the odds ratio was enriched 60 percent (adjusted odds ratio 0.6). Being bullied in school can in itself explain low self-esteem in 24-years young adults whatever other disadvantages or social support they have experienced during adolescence (adjusted odds ratio: 2.4, model 4, table 4).

Table 4. Child maltreatment and self-esteem, II: Social support and bullying as mediators.

	Low degree of self-esteem: Number In sample	Estim. % in Birth-cohort	**Model 3** Unadjusted single factor			**Model 4** Adjusted stepwise		
			Odds ratio		Wald Chi-square	Odds ratio		Wald Chi-square
Child maltreatment: βx_i								
a. Bad odds (probability scale)	N/a	N/a	1.1	***	18		Ns	
b. Physical abuse	28	5.6	2.8	***	21		Ns	
c. Sexual abuse	15	1.2	6.7	***	38	2.0	*	4
d. Psychological maltreatment	85	22.7	4.6	***	69	1.9	*	9
e. Physical neglect	48	14.9	2.5	***	25		Ns	
f. Gender: women	85	47.8	2.0	***	13	1.7	*	8
g. **'in care'** δC	74	6.3	3.2	***	43		Ns	
Mediator variables								
h. Crises support scale (Css)	n/a	n/a	0.5	***	136	0.6	***	45
i. Being bullied in school	69	15.1	4.4	***	70	2.4	***	21
Interaction variables: $\varphi C x_i$								
j. Physical abuse and 'in care' (b*g)	22	1.3	3.4	***	23		Ns	
k. Sexual abuse and 'in care' (c*g)	10	0.4	5.8	***	56		Ns	
l. Psychological maltreatment and 'in care' (d*g)	52	3.0	4.4	***	63		Ns	
m. Physical neglect and 'in care' (e*g)	32	1.9	3.5	***	34		Ns	
n. gender (women) and 'in care' (f*g)	48	2.8	4.2	***	57		Ns	
o. 'Css' and 'in care' (h*g) scale	n/a	n/a	1.1	*	8		Ns	
p. Being bullied in school and 'in care' (i*g)	44	2.4	4.4	***	59		Ns	
Total	135							

Note: Ns, Not significant; N/a, Not applicable;* p<0.05; ** p<0.001; *** p<0.0001; The estimated percentages of risk factors in the 1984 birth cohort are based on the weighted stratified sample.

Being bullied in school is a widespread phenomenon; about 15.1 percent of the population has been exposed to this maltreatment according to their memory when asked in the age of 24 or 25 years old. The Wald-chi-square tells us, that being bullied in school accounts for a large part of the low self-esteem but social support on the other hand accounts for a large part of the high self-esteem.

Risks of suicide ideations

A significant association is found between the young adults having suicide thoughts or attempted suicides and having bad odds due to disadvantaged during their childhood according to the longitudinal prospective register data. But the 'bad odds' can only partly explain occurrence of suicidal behaviour. The actual occurrence of physical abuse, sexual abuse, psychological maltreatment or physical neglect in the formative years are significant associated to later suicidal behaviour – also when the 'bad odds' are taken into account. The decisive factor seems to be psychological maltreatment (adjusted odds ratio: 3.0, model 6, table 5): the young people having experienced psychological maltreatment have three times higher suicidal behaviour than young people without these experiences – also when other risk factors are taken into account. It is the disadvantaged parenting (such as physical abuse, sexual abuse, psychological maltreatment or physical neglect) that is linked to later suicidal behaviour in young people, while being 'in care' or not is not a risk factor in itself. An exception is girls 'in care' who seems to be worse off than others (table 5).

Table 5. Child maltreatment and suicidal behaviour, I.

	Suicidal behavior Number In sample	Estim. % in Birth-cohort	**Model 5** Unadjusted single factor			**Model 6** Adjusted stepwise		
			Odds ratio		Wald Chi-square	Odds ratio		Wald Chi-square
Child maltreatment: βx_i								
a. Bad odds (probability scale)	N/a	N/a	1.4	***	185	1.2	***	41
b. Physical abuse	148	5.6	6.2	***	191	2.6	***	37
c. Sexual abuse	45	1.2	9.2	***	70	2.6	**	10
d. Psychological maltreatment	334	22.7	5.0	***	270	2.5	***	84
e. Physical neglect	194	14.9	2.8	***	99	1.4	*	6
f. Gender: women	327	47.8	1.6	***	27		Ns	
g. **'in care'** δC	304	6.3	3.8	***	190		Ns	
Interaction variables: $\varphi C x_i$								
h. Physical abuse and 'in care' (b*g)	107	1.3	7.5	***	156		Ns	
i. Sexual abuse and 'in care' (c*g)	35	0.4	11.0	***	56		Ns	
j. Psychological maltreatment and 'in care' (d*g)	203	3.0	5.8	***	240		Ns	
k. Physical neglect and 'in care' (e*g)	124	1.9	4.4	***	124		Ns	
l. gender (women) and 'in care' (f*g)	176	2.8	4,8	***	180	1.7	**	11
Total	576							

Note: Ns, Not significant; N/a, Not applicable; * p<0.05; ** p<0.001; *** p<0.0001; The estimated percentages of risk factors in the 1984 birth cohort are based on the weighted stratified sample.

Social support makes a difference for those experienced various forms of poor parenting during adolescence (Table 6). The crises support scale measures the experienced social support and they have 60 percent less risk of having suicidal behaviour also when other risk factors are taken into account (adjusted odds ratio 0.6, model 8, Table 6). The opposite risk factor 'being bullied in school' elevate the risk significantly both for adolescents who have been exposed to 'bad odds' or poor parenting and those who have not (adjusted odds ratio: 2.7, model 8, Table 6).

Table 6. Child maltreatment and suicidal behaviour, II. : Social support and bullying as mediators.

	Suicidal behavior Number In sample	Estim. % in Birth-cohort	**Model 7** Unadjusted single factor			**Model 8** Adjusted stepwise		
			Odds ratio		Wald Chi-square	Odds ratio		Wald Chi-square
Child maltreatment: βx_i								
a. Bad odds (probability scale)	N/a	N/a	1.4	***	184	1.1	***	26
b. Physical abuse	148	5.6	6.2	***	191	2.1	***	20
c. Sexual abuse	45	1.2	9.2	***	70	2.6	**	10
d. Psychological maltreatment	334	22.7	5.0	***	270	2.2	***	40
e. Physical neglect	194	14.9	2.8	***	99	Ns		
f. Gender: women	327	47.8	1.6	***	27	1.4	*	8
g. **'in care'** δC	304	6.3	3.8	***	190	0.3	**	13
Mediator variables								
h. Crises support scale (Css)	N/a	N/a	0.5	***	320	0.6	***	54
i. Being bullied in school	258	15.1	4.7	***	232	2.8	***	75
Interaction variables: $\varphi C x_i$								
j. Physical abuse and 'in care' (b*g)	107	1.3	7.5	***	156	Ns		
k. Sexual abuse and 'in care' (c*g)	35	0.4	11.0	***	56	Ns		
l. Psychological maltreatment and 'in care' (d*g)	203	3.0	5.8	***	240	Ns		
m. Physical neglect and 'in care' (e*g)	124	1.9	4.4	***	124	Ns		
n. gender (women) and 'in care' (f*g)	176	2.8	4.8	***	180	Ns		
o. 'Css' and 'in care' (h*g) scale	N/a	N/a	1.2	***	79	1.4	***	17
p. Being bullied in school and 'in care' (i*g)	166	2.4	5.8	***	202	Ns		
Total	576							

Note: Ns, Not significant; N/a, Not applicable; * p<0.05; ** p<0.001; *** p<0.0001; The estimated percentages of risk factors in the 1984 birth cohort are based on the weighted stratified sample.

Who gets social support and who are being bullied in school?

The social support is operationalized in the Crises support scale which includes having others who are willing to listen, who provide support in emotional and practical ways when necessary, and having contact with others in a similar situation. One may expect that it is the young people, most in need who actually gets the social support. But the general picture is opposite than should be expected. The young people with bad odds, or have had experiences of abuse and neglect (e.g. physical abuse, sexual abuse, psychological maltreatment, or physical neglect) received less social support during their adolescence according to their memory when they were interviewed as 25 years old (Table 7). Social support is a common phenomenon among all the children but rarer among the disadvantaged children growing up than among the more affluent children. The girls are in the same situation as boys when it comes to being socially supported, also when accounted for other risk factors.

Nearly, the same pattern is seen among the victims of being bullied in school. The role as a victim is not chosen at random. Not everybody has a risk of being bullied by peers in the school and the pattern is not the same as having little or no support. It is mostly the children who are experiencing psychological maltreatment by their parents who also are being bullied in school. Their self-esteem

has been damaged seriously in the home and this has accompanied being bullied in school. The children 'in care' are in the most exposed situation. They have 3 times higher probability of being bullied than adolescents who are living with their parents. Both physical neglect and being 'in care' means coming from a low prestigious family and it often also results in old fashion (or dirty) clothing, poor housing, poor meals etc. The nature of school bullying seems to be attracted from low status and the stigmatising aura following being 'in care' or being physically neglected. Generally the girls are in a more exposed position for being bullied than boys also when accounted for other risk factors (Table 7).

Table 7. Child maltreatment and suicidal behaviour, II: Social support and bullying as mediators.

	Less social support Number In sample	**Bullied In school** Number In sample	**Less social support** Adjusted stepwise Odds ratio		Wald Chi-square	**Being bullied in school** Adjusted stepwise Odds ratio		Wald Chi-square
Child maltreatment: βx_i								
a. Bad odds (probability scale)	N/a	N/a	1.1	***	14	Ns		
b. Physical abuse	216	111	3.2	***	43	Ns		
c. Sexual abuse	54	23	3.0	*	8	Ns		
d. Psychological maltreatment	520	284	3.4	***	144	1.8	***	34
e. Physical neglect	351	193	3.2	***	100	1.6	***	18
f. Gender: women	440	317	Ns			1.4	**	10
g. **'in care'** δC	485	323	2.5	***	66	3.2	***	132

Note: Ns, Not significant; N/a, Not applicable; * p<0.05; ** p<0.001; *** p<0.0001; The estimated percentages of risk factors in the 1984 birth cohort are based on the weighted stratified sample.

Conclusion and Discussion

The study focuses on the individual and the group to explain how the suicidal thoughts, and suicidal threats or attempts of individuals are influenced by other people. While most social psychology research tends to be centered on laboratory experiments, the study is using a computational modeling and survey based on a national sample of young people. The study is in a context of larger social structures and processes, such as social roles, gender, and socialization.

The results show long-term effects of physical abuse, sexual abuse, psychological maltreatment and physical neglect, but social support seems to compensate for the poor parenting, at least to some degree. The severe disadvantage during childhood results in long lasting risk of suicidal behaviour many of these young adults did well despite the bad odds because of social support from supportive adults and others. The results support the hypotheses that the adolescents who have experienced child maltreatment during childhood but also had experienced supportive adults have more often developed resilience with a strengthened self esteem and less often suicidal ideations.

Child maltreatment seems to influence both low self-esteem and suicidal ideation directly, but also indirectly through decreased social support and increased risk of being bullied in school. On the one hand the results show that it is the most vulnerable young people who are being bullied and who lacks social support; on the other hand the results shows that the young people in a vulnerable

position who receives social support instead of being bullied also decrease their risk of low self-esteem and suicide ideations.

The assumption is that the adolescents who have experienced child maltreatment during childhood but also had experienced social support have developed resilience with a strengthened self-esteem and free of suicidal ideations. The assumption has not been researched in a nationwide study before, but the results in present study confirm these assumptions.

Only few studies have documented the long term results of child maltreatment. The results from present study are in accordance with the expected damaging influence on self-esteem and suicide ideation. Especially the psychological maltreatment and sexual abuse are damaging for the self-esteem presumable because of the verbal attack, humiliating speaks, public humiliation, threatening behaviour, together with the expression of being told that they are unloved and worthless. Being bullied in school is using the same social interaction processes such as social isolation, humiliation and ridicule, and name calling, while social support constitute quite the opposite processes recurrence of worth, affirmation, providing protection and support in emotional and practical ways.

Werner & Smith in 1992 found that some of the children did well although they were exposed to ‘bad odds’ defined as chronically poverty, parental alcoholism, and mental disorders, together with parental conflicts, quarrels, and separations. These risk factors are only proxy for poor parenting and they are far from being redundant with psychological maltreatment.

The present study has similar two stage approach. The bad odds in the first stage are constructed on the bases of risk factors based on the registers that only include information that is proxy for poor parenting and far from exact measures of psychological maltreatment processes in the family. When more precise measures of psychological maltreatment parental abusive behaviour are obtained the risk factors constituted the ‘bad odds’ are outflanked. And the study confirms that social support for a great many of the young adults reduces the risk of low self-esteem and suicidal ideations even when they have experienced poor parenting with the destructiveness of psychological maltreatment and sexual abuse. The assumption is validated by introducing bullying as the reverse process of social support. The results confirm that these processes seem to be further damaging for the self-esteem and increase the risk of suicidal ideations.

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