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Sociodemographic risk factors for emotional maltreatment in Swedish adolescents

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Abstract. Since most of the studies on risk-factors for emotional maltreatment has been done in an American setting the aim of this study was to investigate risk-factors for emotional abuse in a sample of Swedish adolescents. Data was collected in a classroom setting from 1520 students concerning sociodemographics, neighbourhood-factors and emotional maltreatment. Emotional maltreatment was measured using the Swedish version of the CTQ-SF. Correlations was calculated and a linear regression analysis performed. The results show an association between the investigated variables and emotional maltreatment in line with international studies. The implications of the results are discussed using the family stress model and the transactional-ecological model.

Introduction

The prevalence of child maltreatment (CM) varies wildly in the research literature. In some self-report studies, as many as 25% of adult individual's report that they have suffered from some kind of severe maltreatment during their childhood (Bywaters et al., 2016). When using objective measures like child protective service's records and reports from agencies responsible for reporting maltreatment, the reported prevalence of CM is between 0.5 – 4 % (Sedlak 2010; Bywaters et al., 2016). These studies are from the US and the UK but if they hold true in Sweden out of the approximately 2.000.000 children (age 0-17 y/o) in Sweden (SCB, 2017) between 500.000 and 100.000 children are subject to CM

In the research literature CM is commonly divided into physical abuse, sexual abuse and psychological or emotional abuse (Myers 2009; Bywaters et al., 2016). Psychological abuse and emotional abuse are often used interchangeably (Hibbard, Barlow & MacMillan, 2012). Emotional maltreatment (EM) is defined by the American Professional Society on the Abuse of Children as:" ... a repeated pattern of caregiver behaviour or extreme incident(s) that convey to children that they are worthless, flawed, unloved, unwanted, endangered or only of value in meeting another´s needs." (APSAC, 1995, p.2). In the CM literature, abuse is often separated from neglect. Erickson and Egeland lists five types of neglect: physical, emotional, medical, mental health and educational. According to Schumacher, Smith, Slep and Heyman, (2001) neglect involves the omission, rather than a commission, of behaviour and according to the "Handbook of child maltreatment" (Korbin & Krugman, 2014) neglect is: "unique in that, unlike other forms of maltreatment it does not typically involve an abusive act, but rather omissions in parental care" (p.28). Examples of emotional abuse is: ridiculing or humiliation in front of others, forcing a child to participate in unwanted activity without just cause, belittling and refusing love, attention and touch.

Many ways of conceptualizing abuse and neglect exists in the literature and different terms are used to describe them. It is important to operationalize and define different kinds of (CM) to research and understand it´s effects and occurrence (Chicchetti & Toth, 1995). In this study, the terms emotional abuse (EA) and emotional neglect (EN) is used. The difference between EA and EN is that EA involves acts of commission and EN acts of omission. The term emotional maltreatment (EM) includes both EA and EN and is used when not referring to EA or EN specifically.

EN and EA may be the most prevalent forms of child abuse (Hibbard, Barlow & MacMillan, 2012). Studies have shown that EM has a negative impact on mental health and

wellbeing of children (Hagborg, Tidefors & Fahlke, 2017; Dinkler et al., 2017). EM has been shown to be related to depression, low self-esteem, emotional problems and antisocial functioning as well as a slew of other adverse effects (Myers, 2011). In a recent study it was shown that EA and EN had differentiated effects on subsequent mental health outcomes (Taillieu, Brownridge, Sareen & Afifi, 2016). Despite the detrimental effects of EM, many aspects are still under studied (Egeland, 2009) and most of the research has been done in an American context (Bywaters et al., 2016). There are differences between America and Sweden that makes it unclear to what extent this research is applicable in a Swedish setting. Examples of differences that could influence the applicability are differences in social welfare (Hungerford, 2017; Galloway, 2017), healthcare (Camillo, 2016), child care (Palley, 2012), parenting (Ono & Yielding, 2009) etc. Hence it is important to separate the different aspects of EM (EA & EN) and to do research in a Swedish context.

It is important to study what the risk factors for EA and EN is, to understand why it occurs and to develop prevention programs and interventions. Research that has been done on risk factors shows that sociodemographic factors such as low income, unemployment and low education increases the risk for many types of abuse and neglect including EA and EN (Sedlak, 1997; Korbin & Krugman, 2014; Bywaters et al., 2016; Sedlak, 2010). The effects of low income and unemployment are more pronounced for EN than for EA (Sedlak, 2010). The research connecting low socio-economic status (SES) and EM have been questioned on the grounds of report bias (Drake & Jonsson–Reid, 2014). There is at least four arguments why systematic bias could explain the connection between low income and EM (Bywaters et al., 2016 a; Bywaters et al., 2016 b):

- Social services have more presence in deprived areas and because of this find more cases.
- Poor families may be more visible to referring agencies like schools (particularly when living in more affluent areas) and may be more likely to be reported.
- Staff working with assessing and reporting possible cases of EN and EA may have a systematic bias about the relative capacity of families living in poverty to look after their children safely.
- There may be a class based bias about family patterns in child protection systems.

Although some bias has been shown to exist, most of the difference in rates of EM cannot be explained by it (Drake & Jonsson – Reid, 2014, Bywaters et al., 2016). Hence, more studies are needed to increase knowledge concerning the relationship between sociodemographic risk factors and EM.

There are several theories explaining the connection between economic hardship and CM. One is that SES acts directly by limiting the resources available for investment in material and social support, another that it acts indirectly by causing stress, shame and stigma (Drake & Jonsson – Reid, 2014, Bywaters et al., 2016, Pelton, 2015). The most prevailing theory to explain the connection between EM and low socioeconomic status (SES) is the family stress model, figure 1 (Conger and Conger, 2002). Low income and unemployment is conceptualized as stressors and low education limits the coping strategies available. The model also takes biological, psychological and social resources in to account.

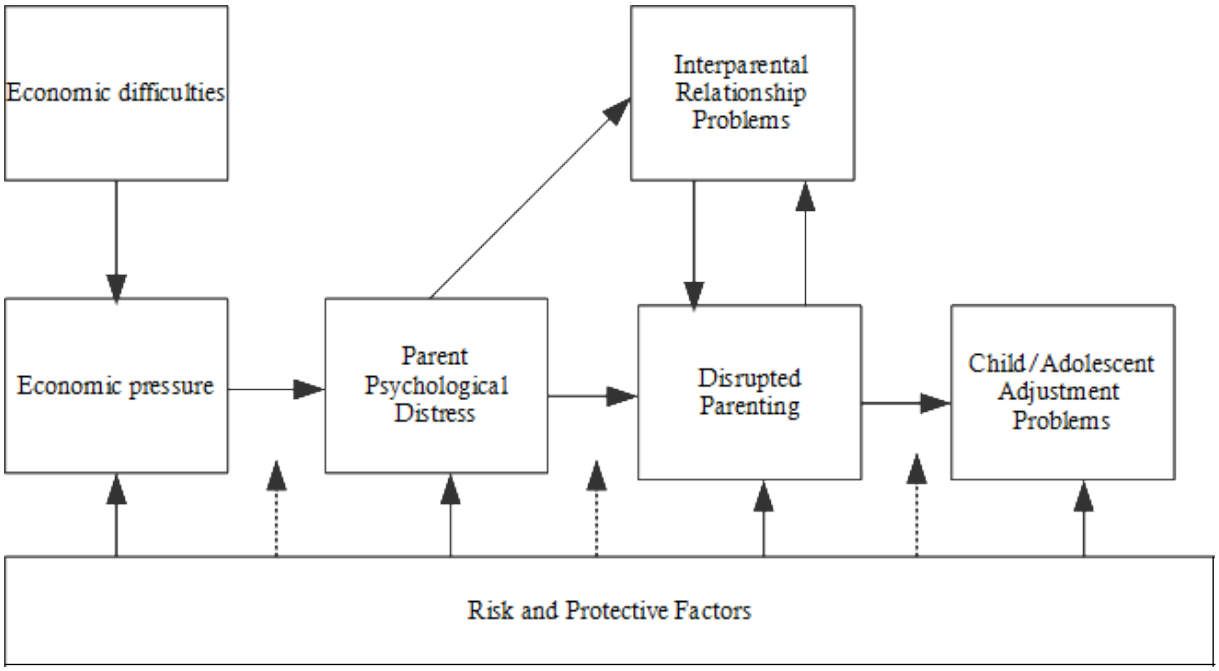

Figure 1. *Family stress model inspired by(Masarick & Conger 2017)*

Other theories occurring in the literature is the transactional model (Chichetti & Lynch, 1993) and the ecological model (Belsky,1980). The transactional model focuses on the transactions between risk factors for CM and divides them into *potentiating* factors, which increases the risk for CM to occur, and *compensatory* factors which decreases the risk (Chichetti & Lynch, 1993). It also separates factors into *transient*, which are fluctuating and may be temporary, and *enduring* which represents more permanent characteristics or conditions. Belskys (1980) ecological model is used to synthesize individual factors, factors within the child or parent depending on what perspective you take, with factors in different levels in Bronfenbrenners ecological levels, to create a fuller understanding of the etiology of CM. The different levels are:

- *ontogenic/individual* this is what the individual brings with them to the family system. Example of an individual factor is temperament
- *Micro system* Factors within the family. Example of a micro system factor is family economy.
- *Exo system* Aspect of the community that contributes to the occurrence of CM. Example of a exo system factor is neighbourhood resources.
- *Macro system* Beliefs and values of the culture

Chichetti & Lynch (1993) proposes that the ecological model and the transactional model can be combined into a transactional/ecological model.
In the study of Neppl, Senia and Donnellans (2016) the results show that economic hardship leads to parental emotional distress and couple conflict which in turn leads to harsher parenting in accordance to the family stress model proposed by Conger and Conger (2002). In this study the term harsher parenting is used, not abuse or neglect. It does however show that parenting style and behaviour is affected by distress. Low SES also has a negative impact on the parent's mental health mainly as a risk factor for depression. In turn, parental depression is also a risk factor for EM (Bywaters et al., 2016; Farell-Erickson & Egeland, 2011).

There is also some evidence that there is an association between EM and neighbourhood economic status or resources (Bywaters, Brady, Sparks & Bos, 2014). Indicators used in this research include income level, property values and drug and alcohol availability. There is however no suggestion to as how these neighbourhood factors influence the prevalence of EM (Bywaters, Brady, Sparks & Bos, 2014).

Bywaters et al. (2016) reports that there seems to be some differences in occurrence of CM based on ethnicity and that the interplay between CM and socioeconomic factors might be moderated by ethnicity. African American and Asian families had less increase in rates of CM than white or mixed families as rates of poverty increased. It is suggested that this difference could disappear if SES is more closely controlled for, that there could be differences in reporting practices or resistance to engagement with authorities, or that some ethnic groups have more effective ways of managing the effects of poverty on CM (Bywaters et al., 2016 a).

Concerning research on the associations between sociodemographic variables and EM, two studies was found using a Swedish sample of adolescents. Both these studies showed a higher rate of EA in boys compared to girls but no difference on EN (Hagborg, Berglund & Fahlke 2017). Another study of Swedish adolescents showed an increased risk for girls being victims of EM (Aho, Gren-Landell, Svedin, 2016). These divergent results might be explained by the fact that the latter study used a one factor measurement of EM that did not separate out EA and EN instead of the two-factor model used by Hagborg, Berglund & Fahlke (2017).

Sedlak (2010) found that living with one biological parent whether with or without another partner was a risk factor for both EA and EN. Only one study concerning family structure and abuse in a Swedish sample was found and showed an increased risk for physical abuse when not living with both biological parents (Aho, Gren-Landell, Svedin, 2016).

The purpose of the present study is to investigate relationships between EA, EN, sociodemographic variables and neighbourhood variables in a sample of Swedish adolescents. To better understand the importance of SES as a risk factor for EA and EN we will investigate how much of the variance in EA and EN is explained by the sociodemographic and neighbourhood variables

Methods

Study population

Data were obtained from the 1,520 adolescents (761 girls and 711 boys) enrolled in the ongoing "Longitudinal Research on Development in Adolescence" (LoRDIA) program. LoRDIA is an on-going multidisciplinary prospective and longitudinal research program studying developmental pathways leading forward to alcohol- and drug use and mental health in a non-clinical population of Swedish adolescents from the age of 12 to 18. Data were collected from the general population (adolescents, their parents, and their teachers) through repeated surveys. The program aims to follow adolescents from the age of 12 to 17 years from four municipalities with 9,000 to 36,000 residents in the south-west and south-central regions of Sweden. Data collection began in 2013 with two cohorts in the 6th and 7th grades and will continue with annual surveys to the 8th and 9th grade. The final data collection will end with a diagnostic interview to discover psychiatric disorders and/or substance use disorders when the participating adolescents are 17. A total of 2021 adolescent were invited to participate in the program, and 1520 (75%) submitted responses on questionnaires. Reasons for exclusion were absence from school (9%) or lack of consent from parents (10%) or the child (6%).

General exclusion analyses have shown that the study sample in LoRDIA is representative of the entire group of invited participants in terms of demography (gender and ethnicity) and school performance (grades and attendance). For this study, the second wave of data gathering was used. The students were in the 7th grade. Out of the 1512 adolescents enrolled in the study, 40 were not present or declined participation at the time of this survey. The data gathering was conducted in October and November 2014. See table 1 for background variables

Table 1
Background/demographic variables. Data is presented as percent with absolute values in parentheses, alternatively as a mean ± standard deviation.

	Total sample (N=1472) % (N)
Gender	
Girl	51.7 (761)
Boy	48.3 (711)
Age	13.35 ± .61 (1471)
Place of birth	
Sweden	92.9 (1367)
Other	6.6 (97)
Current living conditions	
With both biological parents	80.6 (1186)
With biological mother)	7.4 (109)
With biological father)	1.4 (21)
Alternating between mother and father	9.6 (142)
With foster parents	0.6 (9)
Other	0.1 (1)
Siblings	
Only child	11.5 (169)
Have siblings	86.5 (1274)

Procedure

Data has so far been collected via three annual surveys using pen and paper questionnaire in class-room settings. All parents and children received an information letter explaining the purpose of the study. Passive consent was requested from the parents (i.e. not actively responding "no" when asked to let their child participate in the study) and explicit written consent was obtained from the child on the day of the survey. When written consent was requested the children were informed that participation was voluntary and that the collected information would remain confidential, they were also informed that they were free to withdraw from the study at any time. The surveys were administered by trained research assistants in the classroom. Each questionnaire was introduced by a member of the research team and filled out individually by the students. At least one member of the research team monitored the students and were available to respond to questions. Absent students were sent surveys by regular mail. For this study, data from the second wave of measurement was used. The research program and data collection details were approved by the Regional Research Review board in Gothenburg (No. 362-13; 2013-09-25 and with approval confirmed for wave

2 (2014-05-20) and wave 3 (2015-09-02). For extensive description or the Lordia design and study population see Boson et al. (2016).

Measures

Emotional neglect and Emotional abuse. Emotional neglect and emotional abuse was measured using the emotional neglect subscale on the Swedish version of the Childhood Trauma Questionnaire Short Form (CTQ-SF; Bernstein et al., 2003; Gerdner & Allgulander, 2009). CTQ-SF is a retrospective self- report scale that aims to identify five types of childhood abuse and neglect: physical abuse, sexual abuse, emotional abuse, emotional neglect and physical neglect. CTQ-SF consist of 28 items that are rated on a five point, Likert – type scale with response options ranging from [1] *never true* to [5] *very often true*. Example of question from the emotional abuse subscale: *When I grew up someone in my family used to call me "lazy", "stupid" or "ugly"*. Example question from the emotional neglect subscale: *When I grew up there was somebody in my family who made me feel important or special*. The CTQ-SF and its subscale have been empirically validated (Bernstein et al. 2003). The Swedish version of the CTQ-SF has also been empirically verified (Gerdner & Allgulander, 2009). Only the emotional abuse and emotional neglect subscales were administered in the wave of data collection used for this study. The scores on the EA and EN subscales range from 5 – 25. A high score is equivalent to a high amount of EA/EN. Since there are no population based norm data for the CTQ-SF on early adolescents. The participants were grouped by percentiles as advised by Bernstein & Fink (1998). The Percentiles used was 0-65% (none), 66-80% (low), 81-90% (moderate) & 91-100% (high).

Sociodemographic variables. The following demographic variables were used: "Gender", "Parents living together", "Born in Sweden", "Perceived family economy" and "Perceived personal economy". Perceived family economy was measured with the question: "*How is your family's economy compared to others where you live*?" and perceived personal economy was measured with the question: "*If you were to compare yourself to the others in your class – do you have more or less money?*". The answers were measured on a 3-point scale were 1= less money, 2= equal and 3= more money, the same scale was used for both questions.

Gender were measured using the options: "Boy" or "Girl". And both "parents living together" and "Born in Sweden" was measured using the options "Yes" or "No".

Area of living. The questions concerning current area of living was: "*How well does the following statements match your current area of living? A. Vandalism (graffiti, damaging of property) is common in my current area of living. B. As soon as I can I want to move to another area. C. I like my current area of living. D. If an adult sees me doing something illegal in my current area of living my parents would find out about it.*" The answers were measured on a 4-point scale with the following possible answers: 1= Not at all true, 2= Pretty much not true, 3= Pretty much true and 4= Completely true. In this study the variables will be referred to as follows: A. Vandalism. B. I want to move. C. I like my current area of living. D. Social control

Data analyses

First bivariate correlations were calculated using SPSS. After this linear multiple regression analyses were performed to assess how well the sociodemographic variables and the current area of living variables could predict EA and EN scores. Since some signs of heteroskedasticity was found on visual inspection, a Breusch-Pagean test for heteroskedasticity was performed (Kaufman, 2013). The test showed that heteroskedasticity was present ($p > 0.05$). To correct for this and to not overestimate p values, heteroskedasticity robust standard errors were used when performing the ordinary least squares regression, (Kaufman 2013, Hayes and Cai, 2007). The method used for calculating robust standard errors was HC3 (Hayes and Cai, 2007).

Analyses were conducted to ensure no violations of the assumptions of normality, linearity, multicollinearity and homoscedasticity.

Results

The mean scores of the CTQ-SF EA subscale were M = 7.17, SD = 2.95 and the range was Min = 5 and Max = 25. For the EA subscale 1370 valid cases were collected with 102 missing (N = 1472). The mean scores for the CTQ-SF EN subscale were M = 7.54, SD = 3.18 and the range was Min = 6 and Max = 25. For the EN subscale 1416 valid cases were collected with 56 missing (N = 1472). This can be compared to a norm sample of Swedish undergraduate students were the mean for the EA subscale were 7,86 and the mean for the EN subscale were 9,14 (Gerdner & Allgulander, 2009). For a clearer view of the distribution of EN, EA and socidemographics etc refer to table 2 and 3.

Table 2

Sociodemographic characteristics and attitudes/perceptions of current living environment, in the total sample, no-, low-, moderate- and high emotional neglect.

	Emotional Neglect					
	Valid Samples	**Total Sample (%)** N=1472	**None (%)** N=883	**Low (%)** N=235	**Moderate (%)** N=187	**High (%)** N=111
Variables						
Socio-demographics						
Gender (girl)	1416	51.8	53.5	50.6	44.4	53.2
Parents living together (yes)	*1407*	*76.0*	*81.4*	*70.5*	*64.3*	*64.5*
Born in Sweden (Yes)	*1409*	*93.6*	*95.1*	*93.6*	*90.3*	*87.4*
Perceived family economy (less)	*1382*	*6.7*	*4.3*	*5.3*	*13.0*	*18.0*
Perceived personal economy (less)	*1380*	*11.8*	*8.2*	*10.5*	*19.0*	*30.9*
Area of living						
Vandalism is common in my area of living (no)	*1408*	*93.1*	*95.2*	*91.4*	*90.3*	*84.7*
I want to move from my area of living as soon as I can (no)	*1400*	*87.2*	*91.9*	*83.9*	*82.7*	*64.5*
I like my area of living (no)	*1408*	*7.0*	*4.0*	*9.5*	*7.0*	*26.4*
If an adult in my area of living sees me doing something illegal my parents will know about it (no)	*1398*	*12.7*	*9.5*	*15.5*	*14.6*	*28.2*

Table 3.

sociodemographic characteristics and attitudes/perceptions of current living environment, in the total sample, no-, low-, moderate- and high emotional abuse

	Emotional Abuse					
Variables	**Valid Samples**	**Total Sample (%)** N=1472	**None (%)** N=937	**Low (%)** N=201	**Moderate (%)** N=113	**High (%)** N=119
Socio-demographics						
Gender (girl)	1370	51.8	54.5	45.3	48.7	44.5
Parents living together (yes)	1360	76.1	*79.1*	*74.9*	*67.3*	*63.0*
Born in Sweden (Yes)	*1363*	*93.8*	*94.7*	*93.0*	*92.0*	*89.9*
Perceived family economy (less)	*1339*	*7.0*	*4.8*	*8.8*	*12.6*	*16.2*
Perceived personal economy (less)	*1336*	*11.9*	*8.9*	*13.3*	*20.9*	*24.8*
Area of living						
Vandalism is common in my area of living (no)	*1362*	*93.2*	*94.7*	*91.5*	*92.9*	*83.8*
I want to move from my area of living as soon as I can (no)	*1356*	*87.1*	*90.5*	*86.0*	*77.7*	*70.9*
I like my area of living (no)	*1362*	*7.0*	*4.7*		*8.1*	*25.4*
If an adult in my area of living sees me doing something illegal my parents will know about it (no)	*1353*	*12.7*	*8.8*	*14.8*	*25.9*	*27.6*

The bivariate correlations analyses showed that EA had significant ($p < .05$) correlations with all the sociodemographic variables and the current area of living variables, with Pearson´s product moment scores ranging from: .071 - .236 which should be interpreted as a small effect size. EN had significant ($p < .05$) correlations with all sociodemographic variables except gender, and with all current area of living variables, with Pearson´s product moment scores ranging from: .047 - .240 which should be interpreted as a small effect size. The full results of the bivariate correlation analyses are presented in table 4.

The multiple linear regression for predicting EA showed a significant regression equation ($F (9,1286) = 12.0038$, $p < .000$), with an adjusted R^2 of .121. The items: gender, perceived personal economy, vandalism, wanting to move, liking current area of living and social control had significant ($p < .05$) contributions to EA. The full results are presented in table 5.

The multiple linear regression for predicting EN showed a significant regression equation ($F (9,1328) = 20.9683$, $p < .000$), with an adjusted R^2 of .188. The items: gender, parents living together, born in Sweden, perceived family economy, perceived personal economy, want to move, I like my current area of living and social control had significant ($p < .05$) contributions to EN. The full results are presented in table 5.

Table 4.
Correlation matrix for the EA and EN subscales, sociodemographic variables and neighbourhood variables

	EA	EN
EA		-.531*
EN	-.531*	
Gender	.072*	.047
Parents living together	.115*	.170*
Born in Sweden	.071*	106*
Family economy	-.096*	-.184*
Personal economy	-.124*	-.197*
Vandalism	.161*	.144*
Want to move	.260*	.293*
Like my current area of living	-.254*	-.325*
Social Control	-.129*	-.185*

*Comment: * $p < .05$*

Table 5.
Multiple linear regression for the EA and EN subscales

	EA			EN		
Variable	B	SE B	β	B	SE B	β
Gender (boy)	.567	.156	.097**	.535	.162	.083**
Parents living together	.370	.206	.054*	.565	.221	.075**
Born in Sweden	.491	.420	.039	.910	.420	.067*
Family economy	-.087	.217	-.013	-.570	.230	-.078**
Personal economy	-.438	.176	-.080**	-.717	.184	-.118**
Vandalism	.329	.167	.071*	.076	.149	.015
I want to move	.555	.159	.158**	.602	.147	.154**
I like my current area of living	-.548	.196	-.133**	-.807	.176	-.177**
Social Control	-.292	.127	-.076*	-.559	.131	-.132**

*Comment: *p < .05, **p < .01*

Discussion

The aim of this study was to investigate relationships between EA, EN, sociodemographic variables and neighbourhood variables, and the importance of SES as a risk factor for EA and EN, in a sample of Swedish adolescents.

The main findings of this study are in line with international studies. There are associations between sociodemographic, economic, neighbourhood factors and the occurrence of EA and EN. About 12 of the variance of EA and almost 19 % of the variance of EN could be explained within this model. Results from the current study indicate that the results from American and other international studies concerning EA and EN are, in part applicable to a Swedish setting.

It is important to note that even though the variables examined in this study increases the risk of EA and EN to occur, that does not mean that they are the reason that EN and EA occurs. Perceiving to have less money than your peers or being born in a different country is not the direct reason for having experienced EA/EN. Instead, there are other factors that mediate or moderate relations such as mental health status of the parents or alcohol/drug abuse, which is more common in low socioeconomic areas. Others are waiting to be discovered by future research.

Even though the investigated variables are most likely not the cause of the occurrence of EA and EN they can still be considered risk factors. As such, sociodemographic variables could be viewed as indicators of higher risk of the occurrence of CEM within certain groups. These groups (i.e. low SES) might be extra important to target concerning preventive measures.

Many of the results in this study can be understood and interpreted using the family stress model (Conger and Conger, 2002). Family structure and immigration are examples of this. Both single parent households and households with a birthplace outside of Sweden have lower incomes then the mean household (Statistiska Central Byrån, 2017). This increases the stressors in the family and, also the risk for it affecting the parenting. Concerning families with another origin then Sweden, there are also other factors that can be viewed as additional stressors such as discrimination in the work market (DS 2005:12) and discrimination in the

housing market (DO, 2008:3). In the Transactional ecological model these factors would be in the micro system and it is probably influencing EA/EN rates by interactions with factors on the other systems in the model. According to the transactional-ecological model, factors on the micro- and exo- system levels had effects in this study. But how the interactions between them or how they interact with individual factors to increase the risk of EA/EN to occur, needs to be further investigated.

Concerning the neighbourhood factors examined there are a clear connection between them and rates of EA and EN. However, when investigating associations on an item level there was an exception in that vandalism did not have a significant individual contribution in predicting EN scores. We find this to be noteworthy because vandalism is correlated to social unrest, crime rates and drug and alcohol abuse in an area (Ceccato & Haining, 2005). The effects of vandalism and social control on the occurrence on EA and EN can be understood in the context of the family stress model. Social control can be thought of as an expression of stressors taking time and attention away from parenting, and vandalism can be seen as an indicator of social unrest in an area, a stressor in the model. Regarding the respondent's attitudes towards their current area of living it is interesting that they have the highest individual contributions to the model. It is however not possible to determine if this is an indicator of neighbourhood factors that in turn has an impact on the occurrence of EA and EN or that the experience of EA and EN affects how the respondents feel about their current area of living. However, the results from the current study indicate that adolescent dissatisfaction with current living circumstances has an association with EA or EN.

It is also interesting that perceived family economy does not have a significant contribution to the model for predicting the occurrence of EA. This contradicts previous research that shows an association between household incomes and the occurrence of EA (Sedlak, 1997; Korbin & Krugman, 2014; Bywaters et al., 2016; Sedlak, 2010). The reason for this might be that the item used measures the relative income to other families in the area of living and it is not an objective measure of income. Furthermore, Personal economy had a significant contribution in predicting both EA and EN. We have not come across any previous research investigating the connection between perceived personal economy and EA/EN. The results could be explained by the associations between the adolescents perceived economy and the economic pressures in the family. It could also be the case that since EA and EN has negative mental health implications it affects the mood of the respondents which in turn could bias their ratings of perceived economy. It has been shown that mood can affect judgments and satisfaction (Schwarz, Strack, Kommer & Wagner, 1987).

Although it is not the purpose of this study, we note that there seems to be some difference between risk factors for EA and EN. In the current study there is a difference in how well the model predicts the occurrence of EA and EN and there are also differences in the individual contributions of variables to the model for EA and EN. The model predicts rates of EN almost twice as well as rates of EA, ethnicity and family economy has no significant contributions in predicting EA in the model, but it does for EN. It is possible that the interactions between individual, micro, exo and macro system factors are different for EA and EN. We believe more research on these differences could be helpful in better understanding the risk factors for EA and EN.

Strengths and limitations

First and foremost a limitation of the study is that there are a lot of factors that could explain the occurrence of EA and EN that are not controlled for. Examples of such factors are the parent's mental health, parental drug or alcohol abuse. These are factors that when controlled for might have influenced our results

Another limitation is that the variable used for measuring family and personal economy is relative to peers and other people in the neighbourhood and it is unclear how this would relate to more objective measures of income.

The study also relies on self-report measures which warrant caution in interpreting the results. For example, the questions concerning economy are not an objective measure of economy but asks for the relative economy compared to others in the neighbourhood or compared to peers. It is possible that an objective measure of economy would have yield different results. The questions concerning neighbourhood are not validated. Although we think the face validity of the questions are good, we do not know how this would correlate to objective measures. The study is also a cross-sectional study which means that no conclusions concerning causality can be drawn.

A strength of the study is that it uses a large sample of adolescents from the general population. This means that the ability to generalize the results of the study to the general population of Sweden is relatively high. We do acknowledge however, that more studies are needed to validate these results.

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