



Addiction and Lifestyles in Contemporary Europe: Reframing Addictions Project (ALICE RAP)

Resilience across generations

VANLA-Parents and children Sub-study report, Work Package 18

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Abstract

Finnish register data offer an exceptional possibility to study the whole cohort, without the problems of response rates. Even though not very detailed, the data in registers are based on evaluations and diagnoses made by professionals, which to a great extent eliminates social desirability bias.

As part of ALICE RAP WP18 – this study investigated the prevalence of serious substance abuse problems among mothers and fathers and the impact of parents' substance abuse problems on their child's health and social welfare. Abuse of alcohol, drugs or both alcohol and drugs have been looked at, and links with parents' social status, education, mental health and use of some prescribed drugs are examined. The study is a retrospective population-based cohort study based on the Finnish health care and social welfare registers. Data on all Finnish children born in 1991 (n=64 310), in 1997 (n= 58 056) and 2002 (n=55 369), and their biological parents, have been retrieved from the health and social registers. The children of parents with substance abuse problems are compared to other children in the same child cohort.

Parents' substance abuse problems were defined, based on the period from four years before the birth of the child until the child's seventh birthday, as having had any register entries related to substance abuse. Parents' psychiatric disorders, education, marital status and poverty are also looked at, as well as social status and incidence of poverty. Also data on the family's housing situation and whether the parents have lived together with the child is available.

Children were followed up looking at various indicators of health and social risks. Among 0-6 years old children born in 2002 hospitalizations due to injuries and infectious diseases and out-of-home placements were looked at. Disorders of development and behavioral and emotional disorders among children born in 1997 were followed until the age of 12. Furthermore, education and mental health as well as behavioral and emotional disorders were looked at among children born in 1991 until the age of 18. Also the accumulation of health and social problems in parents with substance abuse was looked at.

Parental substance abuse was a risk factor for all studied health and social problems in children. The risks were especially high among small children. Parents with substance abuse had various other problems. It is difficult to disentangle these manifold problems but all these taken into account, parental substance abuse remains a significant independent risk factor for children's safe and healthy development.

1. Introduction

Children's health risks and their experiences of harms in families where parents abuse substances are known to be serious, but in order to find working preventive methods there is lack of information of the magnitude and type of harms, as well as of factors that seem to help children's resilience. Harms vary according to cultural and systemic factors, but a lot of them have been shown to be universally similar (Orford et al 2005). In this ALICE RAP sub-study we had the possibility of using register-based data for examining these issues. The Nordic system of health and welfare registers offers a unique opportunity for looking at the harms and risks of children of addicted parents. Risks to the child's health can be caused by insufficient care or



maltreatment, leading to accidents and illnesses (Bijur et al., 2001; O'Donnell et al., 2010; Orford et al., 2005; Itäpuisto, 2005). Earlier studies have shown that mothers' alcohol abuse increases the injury risk among young children (<1 year) in high-risk families (Crandall et al., 2006). Risk of injuries has been found to be over twofold among children of alcohol-abusing mothers and almost threefold in families where both parents abused alcohol compared with children of abstaining mothers (Bijur et al., 1992). Brain injuries have also been found to be twice as common among children of alcohol-abusing parents compared with the control group (Winqvist et al., 2007).

O'Donnell et al. (2010a, 2010b) found that maltreated Australian children had markedly more hospitalizations related to infections than other children. A similar relationship was found among children of substance-abusing parents in the USA (Woodside et al., 1993) and in Finland (Sarkola et al., 2011). Children exposed to maternal alcohol or drug use during pregnancy also have more problems related to cognitive and social development than other children (Autti-Rämö, 2000; Bandstra et al., 2010). Moreover, children of parents with substance abuse problems are more likely to have substance abuse and mental-health problems, also later in life (Jacob & Windle, 2000; Pulkkinen, 2006; Keller et al., 2008; Pitkänen et al., 2008). Placing children in care outside home is one of the society's methods to prevent harms that may be caused for children because of their parents' problems. Children of substance-abusing parents are more often placed into care outside home than other children (Andersson, 1995; Berrick et al., 1998; Sarkola et al., 2007).

In this research project (VANLA- Parents and children) children were followed up looking at various indicators of health and social risks. Among 0-6 years old children born in 2002 hospitalizations due to injuries and infectious diseases and out-of-home placements were looked at. Disorders of development and behavioral and emotional disorders among children born in 1997 were followed until the age of 12. Furthermore, educational achievement as well as mental health problems and behavioral and emotional disorders were looked at among children born in 1991 until the age of 18. Also the accumulation of health and social problems in parents with substance abuse was investigated.

2. Data and methods

The study used longitudinal population-level register data on all Finnish children born in 1991, 1997 and 2002, and their biological parents. Data for this study came from national health care and social welfare registers from the period 4 years before the year of birth up to 2009 / 2012. The registers used were: 1) the Medical Birth Register, 2) the Care Register for Health Care, 3) the Care Register for Social Welfare, 4) the Register of Social Assistance, 5) the Register of Congenital Malformations, 6) the Prescription Register, 7) the Special Refund Entitlement Register, 8) the Register of Completed Education and Degrees and 9) the Causes of Death Statistics (Table 1).

First, data was collected on children and their biological mothers. In 2012, data on fathers of children born in 1991 was added. In 2014, follow-up data of children was collected until the year 2012. At the same time, data on fathers of children born in 1997 and 2012 were also collected. The data collection on fathers of children born in 1997 and 2002 is still in process as part of the data is still missing (the Social Insurance Institution of Finland).



The data collection began with the Medical Birth Register, from which we obtained the personal identity numbers (assigned to all Finnish residents at birth or upon taking up residency) of all children born during 1991, 1997 and 2002 in Finland and their biological mothers. The different registers were linked using the personal identity numbers. Data collection, register linkages and anonymization of the data were carried out by the register keepers at the National Institute for Health and Welfare (THL), the Social Insurance Institution of Finland and Statistics Finland. The Ethical Review Board of THL approved the study plan.

Parents with substance abuse problems were identified using the Care Register for Health Care, the Care Register for Social Welfare, the Prescription Register, the Causes of Death Statistics and the Register of Congenital Malformations. Mothers were classified as having substance abuse problems (alcohol abuse only, drug abuse only, alcohol and drug abuse) if, during the follow-up time, they had register entries on any primary or secondary ICD-10 diagnosis, records of in-patient or specialized out-patient treatment related to substance abuse problems, a register entry on purchases of medication specifically for treatment of alcohol or drug addiction (ATC groups N07BB, N07BC), had died with a diagnosis related to alcohol or drug abuse or their child had a diagnosis of prenatal alcohol or drug exposure.

3. Aims

This study examined the prevalence of serious substance abuse problems among mothers and fathers of children and the associations between the parents' substance abuse and the children's health, development and welfare, including how often they are placed in out-of-home care.

Children were followed up looking at various indicators of health and social risks. Among 0-6 years old children born in 2002 hospitalizations due to injuries and infectious diseases and out-of-home placements were looked at. Disorders of development and behavioral and emotional disorders among children born in 1997 were followed until the age of 12. Furthermore, educational achievement as well as mental health problems and behavioral and emotional disorders were looked at among children born in 1991 until the age of 18. Also the accumulation of health and social problems in parents with substance abuse was investigated. The children of substance abusing parents were compared to other children in the same child cohort. Also comparisons were made according to the substance used by the parent (alcohol / drugs / alcohol + drugs).

4. Results

4.1 Parents

The vast majority of parents with children born in 1991, 1997 or 2002 had no register entries indicative of substance abuse. Our data deals with parents who have the most serious abuse problems. The substance-abusing parents were divided in three groups 1) those who have register entries on alcohol abuse only; 2) those who have register entries on drug abuse only; and 3) those who have register entries on both alcohol and drug abuse. Alcohol abuse was the most common diagnosis in these data as was to be expected, as alcohol is the most commonly used drug in Finland. Further, prevalence of problems related to any kinds of substances was



more common among fathers than mothers (Holmila & Raitasalo, 2013; Jääskeläinen et al., 2016).

The follow-up of the 1991 cohort showed that older children are more likely to have substance abusing parents than younger children. For instance, the prevalence of substance abuse among mothers of under 6 year old children was 0.5 % and among the 13-17 year olds 2.5%. The corresponding figures among fathers were 1.7% and 7.1%. This is presumably due to the fact that problems get often worse as the drinking continues over a longer period (Raitasalo 2015).

When studying more closely the accumulation of problems in substance-abusing mothers, we found out that these mothers had a higher rate of mortality and psychological disorders and increased risk of using hospital services than the comparison group. Their children had been taken into custody dramatically more often than the children of the comparison group. Also, mothers with substance abuse problems had lower education and income level, and their purchases of prescribed psychopharmacological medications were manifold compared to other mothers. Mixed use of both alcohol and illegal drugs coincided with the highest prevalence of health and social problems (Holmila & Raitasalo, 2013).

In order to look more closely at the differences between the types of substance abuse, we calculated the odds ratios of various risks with the alcohol only abusing mothers as the comparison group. The analysis was performed for all the life event variables, contrasting the illegal drug users and those using both alcohol and illegal drug to the alcohol abusers (Table 1). The age and educational status of the mother were standardized in the analysis. The results showed that the alcohol and illegal drugs -user group was clearly the least well-off group measured by almost all outcome variables. In the 1991 cohort, their risk for poverty measured by receiving of long-standing income support was over two-fold, in the 1997 over four-fold and in 2002 almost six-fold compared to alcohol only abusing mothers. The risk that the child was placed in out-of-home care is about threefold in this group in comparison to the alcohol only group in the 1997 and the 2002 cohorts. The alcohol and drug using mothers' risk of psychiatric disorders was also higher in comparison to the alcohol only - mothers in all cohorts, and their risk of having purchased psychoactive prescription drugs and psychoactive prescription drugs was higher.

In another article on benzodiazepine (BZD) purchases of mothers of children born in 2002 a typology of mothers according to their substance abuse status, psychiatric disorders and socio-demographic characteristics was created using latent class analysis (LCA). The mothers were followed-up yearly for purchases of BZDs, starting 4 years before the child's birth and continuing up to the child's 7th birthday. BZD purchases in different mother groups were compared using negative binomial hurdle models. Five mother types were identified: mothers with substance abuse (1%), mothers with psychiatric disorders (1%), mothers with a risk of social marginalization (11%), mothers with minor social problems (18%) and mothers with no identified problems (69%; the comparison group). Mothers with substance abuse problems had the highest odds of purchasing BZDs (OR = 27.5, 95%CI = 22.9-33.0) and if purchased, the amounts were highest in this group (RR = 20.2, 95% CI = 14.9-27.3). The change in time was similar in all groups: the probability of purchasing and the number of purchases were lowest during pregnancy and the year of the child's birth (Raitasalo et al., 2015).



Table 1. Mothers abusing alcohol and other drugs, or both alcohol and other drugs, odds ratios with 95 % confidence levels

	1991	1997	2002
Death (all causes)			
Alcohol abusing mother	1.00	1.00	1.00
Drug abusing mother	0.64 (0.25- 1.66)	2.10 (0.90- 4.90)	2.26 (0.89- 5.75)
Alcohol+drug abusing mother	2.62 (1.14- 5.99)	1.20 (0.39- 3.69)	1.80 (0.64- 5.08)
Longstanding income support			
Alcohol abusing mother	1.00	1.00	1.00
Drug abusing mother	0.37 (0.24- 0.57)	0.78 (0.52- 1.17)	1.54 (1.06- 2.23)
Alcohol+drug abusing mother	2.29 (0.99- 5.33)	4.14 (2.14- 8.03)	5.92 (3.41- 10.28)
Child placed in out-of-home-care at least once before the child's 7th birthday			
Alcohol abusing mother	1.00	1.00	1.00
Drug abusing mother	0.48 (0.32- 0.74)	0.71 (0.47- 1.06)	1.55 (1.09- 2.21)
Alcohol+drug abusing mother	0.90 (0.54- 1.51)	2.97 (2.17- 4.87)	3.14 (2.17- 4.53)
Register entry on psychiatric disorders at least once before the child's 7th birthday			
Alcohol abusing mother	1.00	1.00	1.00
Drug abusing mother	1.27 (0.87- 1.86)	0.67 (0.46- 0.99)	0.75 (0.53- 1.07)
Alcohol+drug abusing mother	2.73 (1.66- 4.49)	3.23 (2.13- 4.89)	2.07 (1.46- 2.95)
Purchase of opioids (N02A)			
Alcohol abusing mother	1.00	1.00	1.00
Drug abusing mother	3.17 (1.54- 6.56)	2.18 (1.38- 3.45)	1.45 (0.99- 2.11)
Alcohol+drug abusing mother	4.30 (1.88- 9.86)	2.77 (1.71- 4.49)	1.58 (1.07- 2.34)
Purchase of neurosis medicine and tranquilizers (N05B)			
Alcohol abusing mother	1.00	1.00	1.00
Drug abusing mother	1.55 (1.07- 2.25)	1.05 (0.72- 1.54)	1.20 (0.86- 1.67)
Alcohol and drug abusing mother	4.49 (2.60- 7.76)	4.39 (2.86- 6.72)	3.28 (2.27- 4.72)
Purchase of sleeping medicine (N05C)			
Alcohol abusing mother	1.00	1.00	1.00
Drug abusing mother	1.47 (1.01- 2.16)	0.98 (0.63- 1.52)	1.47 (1.04- 2.07)
Alcohol and drug abusing mother	2.69 (1.57- 4.24)	4.33 (2.81- 6.65)	2.54 (1.77- 3.64)

Source: Holmila, M. & Raitasalo, K. & Kosola, M. (2013) Mothers who abuse alcohol and drugs: Health and social harms among substance-abusing mothers of small children in three child cohorts. *Nordic Studies on Alcohol and Drugs*, 30(5), 361–373.

In her study using data of children born in 1991 and their biological parents, Jääskeläinen (2015) found that every tenth family had experienced parental substance abuse before the child's 18th birthday. Of these families, five family types were identified. The most common type was characterized by father's alcohol abuse but these families had no other detectable problems. Another common type was families where the father had a drinking or drug problem and had moved away from the family's home. The two less common and non-traditional family types were characterized by mother's drinking or drug abuse and mental disorders. In the fifth and least common family type the child did not live with either of the parents, both parents had substance abuse and accumulated problems.



Key findings

Parental substance abuse seems to be related to wider family problems. In services for substance abusers the other problems of the families with substance abuse should be identified in order to help them to overcome these problems.

4.2 Small children (under the age of 7 years)

When studying hospitalizations of small children with mothers with substance abuse, we found that 64% of children with a substance-abusing mother and 37% of children in the comparison group had been hospitalized during the study period. The number of inpatient care episodes per 1000 children was 2117 in the group of children with substance-abusing mothers and 1184 in the comparison group. The mean length of each inpatient episode was 3.3 days in the group of children of substance-abusing mothers and 2.4 in the comparison group.

A higher proportion of children with hospital admissions were observed in the group of children with a substance-abusing mother in the ICD-10 categories of injuries, infectious and parasitic diseases, inflammation of the middle ear (otitis media), acute infections of the respiratory system and the category of all other reasons compared with children in the comparison group. All the differences between groups were statistically significant.

To study the effect of the mother's characteristics on the relationship between her substance abuse problems and her children's hospitalizations and out-of-home placements, we adjusted for the child's gender and the mother's psychiatric disorders, poverty, education and couple relationship status by using logistic regression (see Table 2). In the group of children whose mothers had shown combined alcohol and drug abuse, the differences remained significant in all studied disease categories. The risk of hospital treatment due to any studied reason was highest—approximately twofold—in this group. Among children of mothers with solely alcohol abuse, the risk of hospitalization was also significantly higher than in the comparison group in all of studied disease categories except for acute infections of the respiratory system. Children of mothers with drug abuse differed significantly from the comparison group only in respect of the risk of hospitalizations for the category of all other reasons apart from the categories of injuries or infectious diseases.

The most dramatic differences between groups were found when looking at out-of-home placements. One per cent of children in the comparison group were placed out-of-home before their seventh birthday, whereas the corresponding figure was 27% in the group of children with an alcohol-abusing mother, 38% with a drug-abusing mother and 60% with a mother abusing both alcohol and drugs. Among those who had been placed out of home, the children were placed four times on average in the group of children with substance abusing mothers; the corresponding figure in the comparison group was 2.5.

The risk of out-of-home placement was highest—nearly nine-fold—for children with mothers having combined abuse of alcohol and drugs compared with the comparison group. The risks were somewhat lower in the other two groups, in the group of children of mothers with alcohol problems and in the group of children of mothers with drug problems, after adjusting for the child's gender and the mother's socio-demographic characteristics.



Table 2. Odds ratios with 95% confidence intervals for the young children's (under 7 year of age) injuries and illness, by mother's substance abuse with reference to the group of children with no substance abusing mother

	Model 1	Model 2 (Model 1 + gender)	Model 3 (Model 2 + other variables)
S, T. Injury, poisoning and certain other consequences of external causes			
Alcohol abusing mother	1.72 (1.28-2.31)	1.73 (1.29-2.33)	1.39 (1.02-1.89)
Drug abusing mother	1.94 (1.18-3.19)	1.94 (1.18-3.19)	1.49 (0.90-2.48)
Alcohol + drug abusing mother	2.52 (1.57-4.06)	2.53 (1.57-4.08)	1.73 (1.05-2.84)
A. Certain infectious and parasitic diseases			
Alcohol abusing mother	1.48 (1.14-1.91)	1.48 (1.14-1.92)	1.23 (0.94-1.60)
Drug abusing mother	1.53 (0.98-2.41)	1.53 (0.98-2.41)	1.18 (0.75)-1.87)
Alcohol + drug abusing mother	2.78 (1.89-4.10)	2.79 (1.89-4.11)	1.97 (1.33-2.93)
H65-66. Otitis media			
Alcohol abusing mother	1.63 (1.32-2.00)	1.64 (1.33-2.03)	1.58 (1.27-1.95)
Drug abusing mother	1.31 (0.88-1.96)	1.31 (0.88-1.96)	1.24 (0.83-1.85)
Alcohol + drug abusing mother	2.13 (1.48-3.06)	2.14 (1.49-3.08)	1.98 (1.37-2.86)
J0-J2. Acute infections of the respiratory system			
Alcohol abusing mother	1.45 (1.16-1.82)	1.47 (1.17-1.85)	1.11 (0.88-1.41)
Drug abusing mother	1.67 (1.14-2.44)	1.67 (1.14-2.45)	1.19 (0.80-1.75)
Alcohol + drug abusing mother	2.57 (1.80-3.66)	2.59 (1.81-3.69)	1.60 (1.10-2.31)
Hospital treatment for all other reasons			
Alcohol abusing mother	1.54 (1.32-1.80)	1.56 (1.34-1.83)	1.24 (1.06-1.46)
Drug abusing mother	1.87 (1.42-2.46)	1.87 (1.42-2.47)	1.43 (1.08-1.89)
Alcohol + drug abusing mother	2.87 (2.13-3.88)	2.91 (2.15-3.93)	1.93 (1.42-2.63)
Out-of-home care			
Alcohol abusing mother	27.98 (23.19-33.76)	28.15 (23.33-33.98)	5.36 (4.25-6.76)
Drug abusing mother	45.63 (34.10-61.07)	45.70 (34.14-61.17)	7.38 (5.20-10.50)
Alcohol + drug abusing mother	112.48 (82.78-152.84)	113.0 (83.14-153.58)	8.55 (5.97-12.26)
Model 1	Only mother's substance abuse status		
Model 2	Model 1 + child's gender		
Model 3	Model 2 + mother's psychiatric disorders, couple relationship status, longstanding social assistance and education status. Only statistically significant variables are included in each model.		

Source: Raitasalo, K. & Holmila, M. & Autti-Rämö, I. & Notkola, I.-L. & Tapanainen, H. (2014) Hospitalizations and out-of-home placements of children of substance abusing mothers: a register-based cohort study. *Drug and Alcohol Review*, 34(1), 38-46.

Key findings

Small children with substance-abusing mothers were more often hospitalized because of injuries and infectious diseases than other children. They had also been placed out of home more often. Mothers' abuse of both alcohol and drugs was a bigger risk for the child than solely alcohol or solely drug abuse.

4.3 Children aged 0-12

According to the register data of all children born in 1997, 1.4% (n = 803) had a mother with substance abuse problems (SA), 3.2% (n = 1869) had a mother with psychiatric disorders (PD)



and 1.1% (n = 662) a mother with both substance abuse and psychiatric disorders (Ranta, 2015; Ranta & Raitasalo, 2016).

Six percent of children in the study population had register entries on diagnoses related to disorders of psychological development. The same proportion of the studied children had diagnoses on behavioral and emotional disorders. Mood and affective disorders, or neurotic, stress-related and somatoform disorders were diagnosed for 2 % of the children.

Among children of mothers with substance abuse, psychiatric disorders or both, the risks of all studied categories of psychiatric diseases were significantly higher than in the comparison group (Table 3). The risk of disorders of psychological development (F80-89) was about 1.5-fold among children of mothers with SA, PD or SA+PD after adjusting for the child's gender and the mother's socio-demographic characteristics. The risk of these disorders was almost three-fold among boys compared to girls. The risk was also higher among children whose mothers were not in a couple relationship at the time of the child's birth and had no education after secondary school.

The risk of behavioral and emotional disorders (F90-98) was two to three – fold among children of mothers with SA, PD or SA+PD, being the highest among those with SA+PD mothers. Again the risk was higher among boys and those with single-mothers or mothers with long-standing income difficulties. The risk was also higher among children with very young mothers.

The pattern was similar concerning the risk of mood disorders (F30-39) and neurotic, stress-related and somatoform disorders (F40-48): the risk of these disorders was again two to three –fold in the risk groups, being the highest among those with SA+PD mothers. Here again, the risk was higher among boys, among children with single mothers and among those with mothers with long-standing financial hardship (Table 3).

Key findings

Among children aged 0-12 with mothers with substance abuse, psychiatric disorders or both, the risks of all studied categories of psychiatric diseases were significantly higher than in the comparison group. It was a bigger risk for the child to have a mother with both substance abuse and psychiatric disorders than either of these alone.



Table 3. Odds ratios with 95 % confidence intervals for the school-age children’s psychiatric disorders by the mother’s substance abuse (SA), psychiatric disorders (PD) with reference to the group of children with mothers with no substance abuse or psychiatric disorder.

	Model 1	Model 2 (Model 1 + gender)	Model 3 (Model 2 + other variables)
F80-F89			
SA			
PD	1.95 (1.55-2.45)	1.98 (1.57-2.50)	1.33 (1.05–1.69)
SA+PD	1.90 (1.63–2.22)	1.90 (1.62-2.21)	1.58 (1.35–1.85)
Child’s gender (ref=girl)	2.39 (1.90–3.02)	2.40 (1.90-3.04)	1.46 (1.14–1.86)
No couple relationship		2.70 (2.56-2.94)	2.78 (2.56-2.94)
No education after secondary school			ns 1.28 (1.16-1.43)
Long-standing financial hardship			
Mother’s age			1.97 (1.80–2.16) ns
F90-F98			
SA			
PD	3.27 (2.69–3.97)	3.33 (2.73-4.05)	2.15 (1.74-2.64)
SA+PD	2.36 (2.04–2.73)	2.36 (2.03-2.73)	1.90 (1.64-2.23)
Child’s gender (ref=girl)	4.58 (3.78–5.56)	4.64 (3.82-5.64)	2.62 (2.13-3.23)
No couple relationship		2.22 (2.08-2.38)	2.22 (2.08-2.44)
No education after secondary school			1.43 (1.30-1.59) ns
Long-standing financial hardship			
Mother’s age			2.27 (2.07-2.49)
14-20			
21-39			1.21 (1.01-1.45)
40-49			1.00 ns
F30-F49			
SA			
PD	3.07 (2.23-4.21)	3.08 (2.24-4.22)	2.12 (1.53–2.94)
SA+PD	3.41 (2.78-4.18)	3.40 (2.77-4.17)	2.84 (2.30–3.50)
Child’s gender (ref=girl)	4.74 (3.54-6.33)	4.73 (3.54-6.32)	2.96 (2.18–4.01)
No couple relationship		1.43 (1.28-1.61)	1.43 (1.28-1.61)
No education after secondary school			1.25 (1.06-1.43) ns
Long-standing financial hardship			
Mother’s age			2.01 (1.74–2.31) ns
Model 1:	Only mother’s SA and PD status		
Model 2:	Model 1 + child’s gender		
Model 3:	Model 2 + mother’s couple relationship status, longstanding financial hardship and education status.		
	Only statistically significant variables are included in each model.		

Source: Ranta, J & Raitasalo, K (2016) The disorders of cognitive and emotional development in children of mothers with substance abuse and psychiatric disorders. Submitted.



The data also brought out that children show potential resilience. The prevalence of harms is highest among the smallest children (under seven years of age). There is a clear drop in new register entries of injuries, out-of-home care and also new somatic illnesses in the older age group. This result seems likely as small children are most vulnerable and in need of good parental care. It is encouraging that children over seven years are already experiencing fewer problems. Perhaps this is at least partly showing children's resiliency. With increasing age, the child has better possibilities of avoiding the risk caused by the parent's substance abuse. At the age of seven the child has also started school, thus obtaining access to a wider circle of adults and friends. This result indicates that help and support given early enough can increase the likelihood of the child overcoming her/his problems.

Contrary to our expectations, the impact of father's substance abuse on the child's outcomes was quite similar to that of the mother's. Thus, in addition to the mother, it is also important to pay attention to the father's problems in primary health care from the point of view of the child.

5.2 Limitations

The study is based on health and social care registers. Children, whose parents have not been in contact with health or social professionals responsible in saving data into registers, are not included in the study. The number of homes, where substances are causing problems, is likely to be higher than in this study. The study is limited to those families, where the parent's substance abuse problems have been diagnosed by professionals. This study is limited to the most severe cases of parental substance abuse.

5.3 Implications for further research and policy

The parents' substance abuse has negative outcomes on the child's immediate environment, which affects the health and safety of the child. Parental substance abuse - as well as other psychiatric disorders - are also significant risk factors for children's psychiatric development and later lack of further education, even when the socio-economic factors are taken into account.

Also parents with substance abuse are in a serious risk of health and social problems ranging from poverty to poor mental health and high mortality. The social and health care professionals have a potentially important role in giving support to the parents and their children, as the substance-abusing parents have had several contacts with them. Prevention of harms to children of substance-abusing parents should perhaps focus more on the possibilities offered by these contacts in different health and social services.

6. Publications from the VANLA-Parents and children sub-study

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