

# The factors that contribute educational outcomes of adolescents placed in care due to severe behavioral problems



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## ARTICLE INFO

### Keywords:

Adolescents  
Child welfare  
Cohort study  
Education  
Reform school

## ABSTRACT

According to multiple studies, adolescents placed in out-of-home care (OOHC) are less well-educated than their peers in the general population. Reform school (RS) is an institution for youth placed in OOHC due to severe behavioral problems. The educational outcomes of former RS residents are not known. We examined the possible differences in educational level by comparing Finnish national register data for 814 former RS residents in four cohorts (placed in out-of-home care in 1991, 1996, 2001 and 2006) to 4021 of their peers in the general population matched by gender, age, and place of birth. The educational level differences were analyzed by the  $\chi^2$  test of association. Logistic regression models were performed to identify the predictors of having a basic education only. Based on the results, individuals with an RS background have a high risk of low education. Among the RS population, being in the youngest cohort, lack of aftercare provided by RSs, and a diagnosis of substance-related disorders predict lower levels of education. These results call for immediate action. Long-term aftercare programs should be provided for former RS residents. Extending compulsory school attendance to upper secondary study is likely to improve the educational level of the RS population. In addition, effective programs for intervening substance abuse problems should be provided both in RS and aftercare. By these actions, it may be possible to reduce current social exclusion and poor long-term prognosis associated with RS placement.

## 1. Introduction

Achieving a high level of education is related to the well-being of people in many ways. Employment rates and earnings in all OECD and partner countries are higher for those young adults whose educational level is high (OECD, 2017). High educational attainment improves socio-economic status, and associates positively with overall adult health (Baum and Payea, 2005; Ross and Wu, 1995) and with lower levels of anxiety and depression (Bjelland et al., 2008). From a more sociologic viewpoint, education strengthens the sense of control (Mirowsky and Ross, 2007; Ross and Wu, 1995) and improves the overall well-being in life. Among adolescents with a history of out-of-home placement, a lower educational level diminishes their chances in life and their quality of life (Jackson, 1994). Furthermore, a low level of educational is linked to disability pensions (Vinnerljung et al., 2015), low incomes (Österberg et al., 2016), and an elevated risk for criminality and welfare dependency (Berlin et al., 2011).

In the general population, a low level of education is linked to several kinds of trouble in adulthood. Adolescents with only the

compulsory nine years of primary and junior secondary education have a higher risk of social exclusion than adolescents with vocational qualifications completed after the compulsory years (e.g. (Myrskylä, 2011)), more details in section 1.1.2. Likewise, a low educational level affects prolonged unemployment (Sipilä et al., 2011). The reform school population is particularly at risk of social exclusion owing to the numerous, cumulative risks that begin early in their lives (Lehto-Salo, 2011).

Although there have been several studies of the educational outcomes of former child welfare clients, only a few (e.g. Vinnerljung and Sallnäs, 2008) have focused on the educational outcomes of OOHC clients placed due to severe conduct problems. In Finland, the available studies on this population are based on old data and small-sized samples, which weakens their usefulness for improving current practices (e.g., Jahnukainen, 2007; Jahnukainen, 2009). In this paper, we attempt to fill this void by using large-scale, high-quality register-based data.

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<https://doi.org/10.1016/j.childyouth.2019.05.021>

Received 17 December 2018; Received in revised form 14 May 2019; Accepted 17 May 2019

Available online 18 May 2019

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## 1.1. Background to the study

### 1.1.1. The reform school system in Finland

Finnish RSs are rehabilitative institutions for adolescents who have several severe problems. In Finland, there are seven reform schools (RS), five of which are state-owned and two that are privately owned. All RSs operate under the same legislation. Finnish RSs are generally small-scale units. The typical population in an RS consists of 15 to 30 residents cared for by as many as 70 workers in the largest units. In an RS, the spectrum of workers is wide: care givers, who have been awarded a bachelor's degree in social services or health care; special education teachers; school assistants; psychologists and psychiatrists; social workers and administrative staff. (Lastensuojelun käsikirja, 2017; Valtion koulukodit, 2019).

Adolescents placed in an RS are coping with multiple severe behavioral problems, for example problems at school, mental health or substance abuse problems, conduct disorder, and juvenile delinquency (Kitinoja, 2005). Furthermore, many RS adolescents have a history of violent behavior or diagnoses of childhood conduct disorder, self-destructiveness, and attention deficit and hyperactivity disorders (Manninen, 2013). Almost 60% of RS adolescents have learning disabilities, and close to 90% have had a psychiatric diagnosis (Lehto-Salo, 2011). In addition, specific language impairment (Lehto-Salo, 2011; Manninen et al., 2011) and psychiatric comorbidity are common (Lehto-Salo, 2011).

The results from international studies from corresponding facilities show a similar problem spectrum. About 90% of the adolescents in a residential treatment center have at least one psychiatric diagnosis, half of them suffer from disruptive behavior disorders, and one-third have had a diagnosis of affective or anxiety disorders (Connor et al., 2004). Another residential treatment center study confirmed the increased frequency of mental health and behavioral problems: two-thirds have symptoms of externalizing behavior disorder and two-fifths symptoms of internalizing behavior disorder (Baker et al., 2007). In addition, the delinquency rate was twelve percentage points higher among youths in residential treatment center than among adolescents in therapeutic foster care (Baker et al., 2007). Moreover, adolescents in residential youth care institutions both drink weekly and use cannabis and hard drugs more often than their peers: for example two thirds have smoked cannabis compared to one third of their peers (Kepper et al., 2011). However, RS adolescents have difficulties in engaging in treatment and their motivation for rehabilitation is low (Englebrecht et al., 2008; Harder Harder et al., 2012).

Recent studies have shown the higher incidence of multiple problems in adulthood also. Adults with an RS background have a seven-fold premature mortality rate compared to their non-care peers, with substance abuse, suicide, and external causes being the three most frequent reasons for early deaths (Manninen et al., 2015). Delinquency is common among RS adolescents, and as adults they have a thirteen-fold risk of committing a crime compared to their peers without a child welfare background (Manninen et al., 2017). In addition, these adults have higher risks of having abortions and of being a teenage parent and a single parent (Lehti et al., 2015).

In the United States and Finland, the justice models differ from each other, and delinquent adolescents are handled in a different way. In Finland, a child under 15 years old is not liable for his/her offenses. The child welfare system is responsible for his/her rehabilitation, and education plays a pivotal role in the process. Delinquent adolescents up to 17 years old are considered children and are treated in a “gentler” way than older offenders. In the United States, depending on the state, children from 7 to 15 years old are considered to be responsible for their actions and can even be incarcerated. ((Winterdyke, 2015), 6, 9–10.)

In Finland, adolescents with delinquent behavior are placed in RSs rather than in correctional facilities. Instead of punishment, the aim of RSs is to promote and support a child's development, rehabilitate them,

and, in addition, to provide education. In other words, RSs integrate both home and school life. (Jahnukainen et al., 2004; Laki Terveyden ja hyvinvoinnin laitoksen alaisista lastensuojeluyksiköistä 2010/1379, n.d.; Lastensuojelun käsikirja, 2017).

In Finland, an adolescent is placed in an RS when it is not possible for the person to be raised appropriately in any other child welfare institution (Laki Terveyden ja hyvinvoinnin laitoksen alaisista lastensuojeluyksiköistä 2010/1379, n.d.). RS placement typically takes place after placements in several other institutions have failed (Jahnukainen et al., 2004; Kitinoja, 2005). Adolescents placed in RS are a highly selected, marginal group of all children placed in OOH. In Finland, almost 18,000 children were placed in OOH in 2017 (equivalent to 1.4% of the 0 to 20-year-old age group (THL, 2018), while only 250 of them were placed in RS. Only 1.5% of the total foster care population is RS adolescents (Pekkarinen, 2017).

As the most significant reason for placing an adolescent in RS is severe school problems (Kitinoja, 2005), the school plays a significant role in the everyday life of RS residents. One aim of the placement is the completion of the compulsory years of education and gaining the essential skills to continue upper secondary education studies.

Many rehabilitative elements, which support emotional and social development, are included in the upbringing of an adolescent placed in an RS. In addition to basic school, the RS daily program includes shared meals, hobbies, talks with care personnel, and engagement in several therapies and treatment programs - e.g. family therapy, meetings with a psychologist and a psychiatrist, group-based therapy like Aggression Replacement Training (ART)- are provided for the residents in the RS and their families. If necessary, psychiatric care is provided for the RS adolescents by national special health care system, and treatment programs for substance abusers are provided by municipalities (Valtion koulukodit, 2019).

### 1.1.2. Education system in Finland

In Finland, early childhood education is meant for children who are 0–6 years old. Only the last year of the early childhood education is compulsory. In that year, a child is taught the salient skills that are needed in the comprehensive school. Nine years of compulsory comprehensive (basic) school starts the year a child turns seven. Children 7–12 years of age attend six grades of comprehensive school, and adolescents attend junior high school between the ages of 13 and 16. After compulsory education, adolescents apply for general or vocational upper secondary studies. Graduation from general or vocational upper secondary studies is required for bachelor's, master's and doctoral studies in universities. (Opetushallitus, 2019).

In Finland, a child having special needs is eligible for support by the state. The support is divided into three levels: general support, intensified support and special support. Although most of the children with special needs are educated in mainstream education, some special education classes and schools still exist (Jahnukainen and Itkonen, 2016). As the RS schools are classified as a part of special education section, the teachers are required a master's degree in special education. Despite this, not all RS teachers are currently qualified due to the lack of resources. The percentage of qualified teachers is not available. The adolescents placed in RS follow the same national core curriculum as other pupils in Finnish comprehensive schools. However, in case of diagnosed learning disabilities, their curriculum can be individualized. (Laki Terveyden ja hyvinvoinnin laitoksen alaisista lastensuojeluyksiköistä 2010/1379, n.d.; Perusopetuslaki 628/1998, 1998; Valtion koulukodit, 2019).

In Finland, reform schools are comparatively small units where RS personnel and students learn to know each other and may build close relationships. In a classroom, on average there are five students, a teacher and a school assistant (Pekkarinen, 2017); teaching and guidance thus take place at a personal level. Furthermore, care givers and school personnel work closely together in order to support RS students' learning; therefore, the graduation rates from compulsory school are

high (Pekkarinen, 2017). Taken together, RS students need continuous and strong support in schooling and their everyday lives, both during placement and in the stressful phase of exiting foster care.

### 1.1.3. The Finnish child welfare system

The aim of the child welfare system is to protect children and their development. If a child's development or health is in danger due to the child's own behavior or the circumstances in which the child is living, the municipal providers of social services are obliged to investigate the child's situation. Before a child is taken into custody, open care services must be provided, if possible. Placement in open care means that the child is placed temporarily without being formally taken into care. The child's custodian must agree with this arrangement, and the custodian is "in charge of the child's care and upbringing". Placement in open care is arranged if the child needs rehabilitation or the custodian is not able to foster the child for some reason. (Child Welfare Act, 417/2007, n.d)

If open care services are insufficient, the child is taken into care. Emergency placement is needed if the child's safety and development are for some reason endangered. Thus, the child must be placed immediately. Involuntary placement means that neither the child's guardian nor the child over 12 years of age accepts the placement. In this case, instead of the municipal social services, the administrative court makes the decision on the placement. Out-of-home placement includes family care and institutional care. The child is taken into institutional care if adequate family care cannot be arranged. One of the forms of institutional care is the RS system. (Child Welfare Act, 417/2007, n.d)

After the termination of custodial care at the age of consent (18 years in Finland), the adolescent is provided with voluntary after-care services. These services include financial aid and accommodation. These aftercare services continue up to the age of 21.

### 1.2. Previous research

Several international studies confirm that children placed in OOH, regardless of the type of out-of-home placement, have a risk of remaining less educated (e.g., Berlin et al., 2011; Cameron et al., 2012; Cameron et al., 2018; Vinnerljung et al., 2005). The results from North America (e.g., Courtney and Dworsky, 2006; Jones, 2010; Mersky and Janczewski, 2013; Warburton et al., 2014) are in line with the results from Great Britain (e.g., Biehal et al., 1994), France (Dumaret et al., 2011) and the Nordic countries (e.g., Clausen and Kristofersen, 2008; Österberg et al., 2016; Vinnerljung and Hjern, 2011; Vinnerljung and Sallnäs, 2008).

For example, in a study from the United States, adults with a foster care background graduated from high school as often as adults without a history in placement. Dropping out is common: although slightly over 40% had continued their studies after high school, only 20% had achieved a degree. (Pecora et al., 2006.) A similar proportion of upper secondary graduates (19%) was reported in a small-scale Finnish follow-up study among former RS students (Jahnukainen, 2007).

Jackson and Cameron (Jackson and Cameron, 2012) carried out a study by comparing the further education of former child welfare clients in England, Denmark, Sweden, Spain, and Hungary. In all five countries, these adolescents pursued post-secondary education less often than their peers without a child welfare history. In England and Sweden, three in four child welfare clients who participated in the study had been placed in foster homes. Half of the adolescents placed in care in Spain, Hungary and Denmark resided in residential homes. Despite the type of placement, the educational attainment of adolescents placed in OOH was lower in comparison with their non-care peers. (Jackson and Cameron, 2012.)

The child (and social) welfare systems are similar across the Nordic countries and based on rehabilitation and care. Nevertheless, the association between out-of-home placement and poor education has been confirmed by Nordic studies. Adolescents with a child welfare history end up with only the compulsory amount of education more often than

their peers in the non-care population (Heino and Johnson, 2010; Johansson and Höjer, 2012; Kääriälä et al., 2018; Kestilä et al., 2012; Ristikari et al., 2016).

For example, in a Swedish register study, adolescents with a child welfare background had lower post-secondary education completion rates than the majority population. Depending on the subgroup, between one-third and two-thirds of child welfare clients had completed only compulsory education. The worst outcome was among adults who had been in care for not more than five years during their teen-age years. The best outcome was among adults who had been in care for not more than five years before their teen-age years. (Vinnerljung et al., 2005.)

### 1.3. Factors that negatively affect education among OOH adolescents

Several studies have found that placement in residential care is linked with a lower level of education compared to placement in foster care. Biehal et al. (Biehal et al., 1994) discovered that three out of four of those from residential care left school without qualifications, compared to half of those who had been living in foster homes. Likewise, in Vinnerljung's and Sallnäs' study (2008), adolescents placed in residential care had a two-fold risk for completing compulsory education only compared to adolescents with a history in foster care.

The outcomes of educational attainment are also lower, if a child has been placed in care due to conduct problems (e.g. Villegas et al., 2014). Vinnerljung and Sallnäs (Vinnerljung and Sallnäs, 2008) reported that, if the reason for placement was due to behavioral problems, both genders had higher rates for having completed only basic education degree at age 25 compared to those placed in care for other reasons: 64% of females and 67% of males placed in care for conduct problems had achieved the lowest level of educational attainment compared to 41% of females and 48% of males placed in care for other reasons.

Other factors linked to the lower level of schooling among adolescents with a history in OOH include placement: due to maltreatment (Villegas et al., 2014), multiple placements (Biehal et al., 1994; Pecora et al., 2006; Stein, 1994; Villegas et al., 2014), spending only a short length of time in care (Villegas et al., 2014; Vinnerljung and Sallnäs, 2008), and entering care during the teen-age years (Kestilä et al., 2012; Österberg et al., 2016; Vinnerljung et al., 2005).

In addition, several other factors are associated with poor educational outcomes. The results of multiple studies indicate that males have a greater risk of being less-well educated than females - both among general population (e.g. Buchmann et al., 2008) and the population with a child welfare background (Cameron et al., 2018; Viner and Taylor, 2005; Vinnerljung et al., 2010; Vinnerljung and Sallnäs, 2008). In addition, teenage pregnancy is negatively related to continuation of education (Jahnukainen, 2007; Vinnerljung and Sallnäs, 2008), which is also true of the non-care population (Fergusson and Woodward, 2000; Manlove, 1998). Moreover, mental health problems negatively affect educational outcomes, for example, depression among females (Fletcher, 2008; Leach and Butterworth, 2012; Needham, 2009), affective disorder among males (Leach and Butterworth, 2012), anxiety disorder (Woodward and Ferguson, 2001), conduct disorder (Miech et al., 1999), attention deficit/hyperactivity disorder (Miech et al., 1999) and overall externalizing behaviors (McLeod and Kaiser, 2004).

### 1.4. Aims of the study

Taken together, previous research has shown that a foster care background at large and especially placement due to severe conduct problems are associated with low educational outcomes. Education plays an important role in people's lives, and higher level of education has a positive effect on socio-economic status and overall well-being. Thus, we set out to assess the educational outcomes and associated factors among former RS residents. The following four research

questions were posed for the study:

- 1) What is the educational attainment of former RS subjects compared to that of a matched general population comparison group?
- 2) Are there differences between the cohorts?
- 3) Do the placement factors derived from previous OOHC studies (placement instability, grounds for placement, length of the RS placement, and age at the time of first RS placement) also have an effect on the educational levels among those in the RS population?
- 4) Do specific demographic factors (gender, teenage maternity and mental health problems) predict the educational attainment of RS subjects and the comparison group?

## 2. Material and methods

### 2.1. Study population

The subjects ( $N = 814$ , 547 males and 267 females) were chosen from Finland's National Child Welfare Register (Kansallinen lastensuojelurekisteri) based on the entry "residing in a reform school" on 31 December of 1991, 1996, 2001, or 2006. Data were retrieved from three national registers: the Register of Educational Attainment held by Statistics Finland (Suoritettut tutkinnot, Tilastokeskus), the National Child Welfare Register (Kansallinen lastensuojelurekisteri), and the National Patient Register (Kansallinen hoitoilmoitusrekisteri) held by the National Institute for Health and Welfare (Terveyden ja hyvinvoinnin laitos, THL). The data from three national registers were combined by the National Institute for Health and Welfare, and anonymized before being provided to the researchers.

The birth years ranged from 1973 to 1995, and the median age was 15.0 years. The follow-up time after leaving the RS ranged from 1 to 20 years. The RS population was compared with a control group without a child welfare background, matched by place of birth, sex, and age ( $N = 4021$ , 2697 male, 1324 female). The aim was to get five matched controls for every RS subject. For 765 (94%) of the RS subjects, this succeeded, but for 49 (6%) of the RS cases, only four matched controls were located, as the proband had been born in a small municipality. The data acquisition date was December 31, 2011. The study protocol was approved by the institutional review board of Finland's National Institute for Health and Welfare.

### 2.2. Statistical analysis

First, differences between the RS subjects and the controls in educational levels were analyzed by using the  $\chi^2$  test of association. The educational level variable had two categories: 1) completed the nine years of compulsory (basic) schooling and 2) completed upper secondary education, in either the general or the vocational stream. Since only four RS individuals had gained post-secondary degree, they were added to the upper secondary degree group. The  $\chi^2$  test was also conducted to assess the possible differences in educational levels based on cohort, placement instability, grounds for placement, length of the RS placement, age at the time of the first RS placement, gender, teenage maternity, and mental health problems. Gender, teenage maternity, and mental health problems in eight domains<sup>1</sup> were used as dichotomous factors.

<sup>1</sup> Mental health problems include substance-related disorders, schizophrenia spectrum disorders, affective

disorder, personality disorder, mental retardation, disorders of psychological development, conduct disorder/ADHD and other childhood disorder (F93 Emotional disorders with onset specific to childhood, F94 Disorders of social functioning with onset specific to childhood and adolescence, F95 Tic disorder, F98 Other behavioral and emotional disorders with onset usually occurring in childhood and adolescence).

Both placement instability and length of RS placement were grouped into equal-sized, mutually exclusive subgroups. Placement instability was categorized in three groups: zero or one other placements, two to three other placements and four or more other placements. The length of the RS placement was also divided into four groups: under 600 days, 601 to 900 days, 901 to 1200 days and over 1200 days. Age at the time of the first out-of-home placement was sorted into four age-group categories: group 0–6, 7–12, 13–15, and 16–18. This sorting was based on the ages at which a child entered the different levels of education in the Finnish school system. The variable "Grounds for placement" was divided into five groups based on the official grounds used in Finland: placement in open care, emergency placement, involuntary placement, out-of-home placement, and after-care.

The choice of the predictor variables was guided by previous studies: placement instability (e.g. Pecora et al., 2006; Stein, 1994; Villegas et al., 2014), length of the RS placement (e.g. Villegas et al., 2014; Vinnerljung and Sallnäs, 2008), age at the time of first RS placement (e.g. Kestilä et al., 2012; Österberg et al., 2016), gender (e.g. Cameron et al., 2018; Vinnerljung et al., 2010; Vinnerljung and Sallnäs, 2008), and teenage maternity (Vinnerljung and Sallnäs, 2008). A variable "cohort" was chosen to examine possible trends over time. Although the choice of the 'grounds for placement and mental health problems' variables were not based on previous research, the data we had offered us an opportunity to study the effects of these variables on educational outcomes.

Logistic regression analyses were performed to estimate Odds ratios (OR) for the RS subjects' educational outcomes in comparison with the controls. The choice of using logistic regression analysis was guided by other studies on educational outcomes of adolescents placed in OOHC (e.g. Vinnerljung et al., 2005; Vinnerljung and Sallnäs, 2008).

The reference category in logistic regression analyses was the compulsory school degree. To identify the predictors of completing compulsory schooling in the RS group, the influence of the following explanatory variables on educational outcomes was examined: cohort, placement instability, grounds for placement, length of the RS placement, age at the time of first placement, gender, teenage maternity, and mental health diagnoses. These variables were included in the univariate logistic regression analyses whether they showed statistical significance in the  $\chi^2$  test of association. Among the explanatory variables, the group that had the best educational outcomes was always chosen for the reference group.

The regression analysis had three steps. First, univariate logistic regression analysis on the RS subjects was performed separately for all explanatory variables. Second, the explanatory variables were categorized into three groups - placement variables, demography, and mental health diagnoses - and multivariate regression analyses were carried out for these groups separately. Third, the variables that were significant were placed together in the final logistic regression model. In this multivariate analyses, several methods (enter, forward, and backward) were experimented with, but regardless of the method, the odds ratios were similar, and thus the enter option was selected. The Bonferroni correction was used to diminish the chances of obtaining false-positive results. All analyses were performed using SPSS software (version 24).

## 3. Results

### 3.1. Level of education

The RS subjects were significantly less well-educated than the controls ( $p < .001$ ). Among all RS subjects, almost four out of five had completed compulsory schooling only. Among the controls, the corresponding number was one out of five (see Table 1). The odds for basic education only was 15 times higher for those from RS background compared to controls (OR = 14.92, 95% CI = 12.30–18.09). One fifth

**Table 1**  
Reform school subjects and controls showing basic education and upper secondary degree or higher cohort by cohort.

Cohort		Basic education	Upper secondary completion	
		n (%)	n (%)	
1991	RS subjects	106 (63)	63 (37)	814 (100)
	Controls	93 (11)	739 (89)	
1996	RS subjects	144 (74)	52 (26)	817 (84)
	Controls	155 (16)	817 (84)	
2001	RS subjects	156 (77)	46 (23)	820 (82)
	Controls	180 (18)	820 (82)	
2006	RS subjects	220 (89)	27 (11)	805 (66)
	Controls	412 (34)	805 (66)	
Total	RS subjects	626 (77)	188 (23)	814 (100)
	Controls	840 (21)	3181 (79)	4021 (100)

The difference between subjects and controls is significant ( $p < .001$ ), both for all cohorts combined and separately.

of the RS subjects had completed upper secondary education or higher compared to almost four-fifths of the controls. Only four individuals (0.5%) with an RS background had earned a post-secondary qualification, whereas the corresponding percentage among the controls was 22%.

Next, we compared the possible cohort differences. Depending on the cohort, 63–89% of the RS subjects had finished basic education only, compared to 11–34% of the controls (Fig. 1). Although the differences between educational outcomes in different cohorts were statistically significant ( $p < .001$ ), the differences were not dramatic (Partial eta squared 0.38). Odds ratios for having basic education only in the RS group compared to the controls varied within the cohorts from 13.37 (95% CI = 9.15–19.53) for the 1991 cohort to 15.92 (95% CI = 10.49–24.16) for the 2006 cohort, as shown in Table 2. The least educated RS cohort was that of 2006: almost nine in ten RS subjects had only completed basic education, compared to one in three among the controls ( $p < .001$ ).

The most educated cohort was that of 1991; slightly over one-third of the RS subjects had completed upper secondary education or higher. Nevertheless, the rate was lower than the corresponding proportion among the controls, which was almost nine out of ten. Despite the better upper secondary school completion rates than in other cohorts, the completion of compulsory school education was prevalent

**Table 2**  
Odds ratios for having only basic education, reform school subjects versus controls cohort by cohort.

Cohort	OR	(95% CI)	Sig.
1991	13.37	9.15–19.53	***
1996	14.60	10.18–20.93	***
2001	15.45	10.71–22.28	***
2006	15.92	10.49–24.16	***

\*\*\*  $p < .001$ ; OR = odds ratio; CI = confidence interval; Sig. = Statistical significance.

in > 60% of the RS subjects. In contrast, slightly over 10% of the controls had obtained only the compulsory school degree.

3.2. Educational outcomes and background factors in the RS group

Next, we predicted educational outcomes compared with selected background factors. These analyses were performed for RS subjects only. Placement instability was significantly associated ( $p < .001$ ) with lower educational outcomes (Table 3): almost nine out of ten of the RS subjects who had four or more other placements completed basic education only. Their risk of having completed compulsory schooling was three-fold (3.15, 95% CI = 2.09–4.90) compared with those with zero to one other placements (Table 4). However, in the final logistic regression model, the predictive power of placement instability was not significant for the educational outcomes (Table 5).

The grounds for placement were significantly related to continuation of education ( $p < .001$ ): over half of those RS subjects who had been in aftercare had completed upper secondary education or higher (Table 3). In addition, the grounds for placement -variable was a significant predictor of remaining less educated (Table 5).

The length of the RS placement or age at the time of the first out-of-home placement failed to predict educational outcomes at a significant level ( $p = .15$  and  $p = .19$ , respectively) (Table 3). However, in the final logistic regression model, placement in RS for 901–1200 days predicted completing compulsory education only (OR 1.74, 95% CI = 1.04–2.90), as shown in Table 5.

3.3. Educational outcomes and background factors

Among the RS population, gender was not associated with educational attainment. However, there was a trend towards a gender effect –

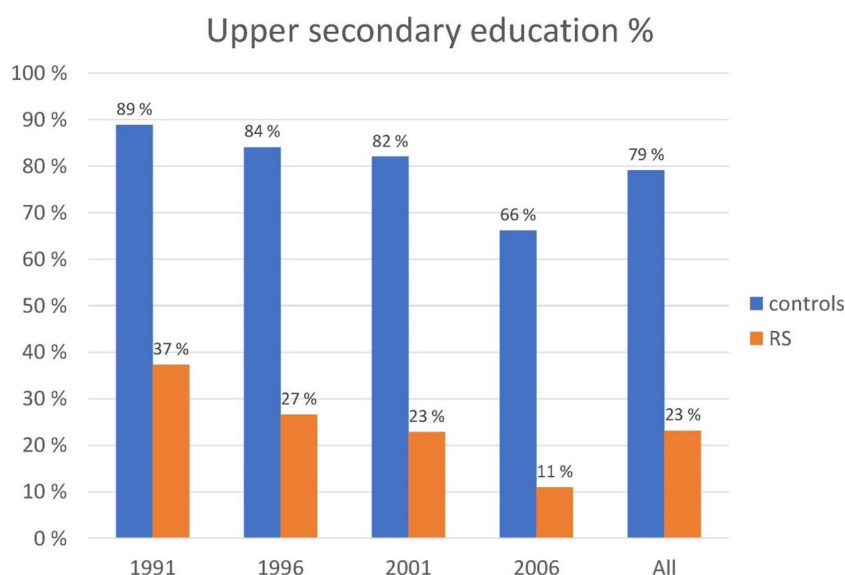


Fig. 1. Educational outcomes of RS subject and controls cohort by cohort.

**Table 3**  
Percentages of reform school subjects with basic education and upper secondary completion or higher and four background variables.

Cohort		Basic education	Upper secondary completion	Total	Sig.
		n (%)	n (%)		
Placement Instability	Zero to one	205 (68)	96 (32)	301 (100)	
	Two to three	206 (77)	60 (23)	266 (100)	
	Four or more	215 (87)	32 (13)	247 (100)	***
Grounds for placement	Placement in Open care	82 (71)	33 (29)	115 (100)	
	Involuntary Placement	60 (77)	18 (23)	78 (100)	
	Out-of-home Placement	469 (80)	118 (20)	587 (100)	
Length of the RS placement	Aftercare	14 (42)	19 (58)	33 (100)	***
	Under 600 days	160 (82)	36 (18)	196 (100)	
	601–900 days	149 (74)	52 (26)	201 (100)	
	901–1200 days	150 (79)	40 (21)	190 (100)	
Age at the time of the 1st placement	Over 1200 days	166 (74)	60 (26)	226 (100)	NS
	0–6 years	62 (82)	14 (18)	76 (100)	
	7–12 years	151 (81)	35 (19)	186 (100)	
	13–15 years	336 (75)	110 (25)	446 (100)	
	16–18 years	76 (72)	29 (28)	105 (100)	NS

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; NS non-significant.  
Sig = Statistical significance; Analyzed by the  $\chi^2$  test of association.

**Table 4**  
Odds ratios for having basic education only among RS subjects in univariate logistic regression.

Cohort		OR	(95% CI)	Sig.
Reference group: 1991	1996	1.65	1.56–2.57	*
	2001	2.02	1.28–3.71	**
	2006	4.84	2.92–4.84	***
Placement Instability	Two to three	1.61	1.10–2.34	*
	Four or more	3.15	2.02–4.90	***
Reference group: Zero to one				
Grounds for placement	Placement in open care	3.41	1.53–7.59	**
	Out-of-home Placement	5.39	2.63–11.07	***
	Involuntary Placement	4.52	1.90–10.78	***
Length of the RS placement	Under 600 days	1.61	1.01–2.56	
	601–900 days	1.04	0.67–1.60	NS
	901–1200 days	1.36	0.86–2.14	NS
Reference group: Over 1200 days				
Age at the time of the 1st placement	7–12 years	0.97	0.49–1.94	NS
	13–15 years	0.69	0.37–1.28	NS
	16–18 years	0.59	0.29–1.21	NS
Reference group: 0–6 years				
Gender	Boy	1.37	0.98–1.93	NS
	Girl			
Teenage maternity	Yes	0.68	0.28–1.67	NS
	No			
Substance-related disorders	Yes	1.63	1.11–2.38	**
	No			
Reference group: No				

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; NS non-significant.  
OR = odds ratio; CI = confidence interval; Sig = Statistical significance.

girls being better educated than boys, but the difference failed to be significant ( $p = .07$ ). Substance-related disorders were negatively associated with schooling ( $p < .01$ ). The relationship between educational outcomes and other mental health diagnoses was not statistically significant among the RS subjects. Teenage maternity was not related to continuation of education, either among the RS adolescents ( $p = .41$ ) or the controls ( $p = .19$ ).

Among the controls, the difference between educational outcomes and gender was significant ( $p = .007$ ): females were better educated than males. Further, any mental health diagnosis, including substance-

**Table 5**  
Odds ratios for having basic education only among RS subjects in multivariate logistic regression.

Cohort		OR	(95% CI)	Sig.
Reference group: 1991	1996	1.49	0.89–2.49	NS
	2001	1.69	0.97–2.95	NS
	2006	4.53	2.38–8.65	*
Placement instability	Two to three	1.20	0.76–1.90	NS
	Four or more	1.63	0.92–2.91	NS
Reference group: Zero to one				
Grounds for placement	Placement in open care	5.75	2.35–14.06	***
	Out-of-home placement	7.66	3.43–17.12	***
	Involuntary placement	4.92	1.90–12.72	***
Length of the RS placement	Under 600 days	1.66	0.98–2.82	NS
	601–900 days	1.12	0.70–1.80	NS
	901–1200 days	1.74	1.04–2.90	*
Reference group: Over 1200 days				
Substance-related disorders	Yes	2.06	1.37–3.10	***
	No			

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; NS non-significant.  
OR = odds ratio; CI = confidence interval; Sig = Statistical significance.

related disorders, were associated with a lower level of education ( $p < .001$ ).

The association between educational outcomes and different background factors, both among the RS subjects and the controls are shown in detail in Table 6.

### 3.4. The predictors of educational outcomes in the RS group

In the final analysis, we predicted educational levels based on the results from univariate logistic regression analyses. Thus, the chosen predictors for the multivariate model were cohort, placement instability, grounds for placement, length of the RS placement, and substance-related disorders (Table 4). The results from the final multivariate regression model revealed that being in the 2006 cohort, grounds for placement, placement in RS for 901 to 1200 days, and a diagnosis of substance-related disorders were significant predictors of

**Table 6**  
Percentages of reform school subjects and controls with compulsory school completion and upper-secondary completion or higher and ten background variables.

			Compulsory	Upper secondary	Total	Sig.
			n (%)	n (%)		
Gender	RS subjects	Male	431 (79)	116 (21)	547 (100)	NS
		Female	195(73)	72 (27)	267 (100)	
	Controls	Male	596 (22)	2101(78)	2697 (100)	
		Female	244 (18)	1080 (82)	1324 (100)	
Teenage maternity	RS subjects	No	610 (77)	181 (23)	791 (100)	NS
		Yes	16 (70)	7 (30)	23 (100)	
	Controls	No	837 (21)	3177 (79)	4138 (100)	
		Yes	3 (43)	4 (57)	7 (100)	
Substance-related disorders	RS subjects	No	390 (74)	136 (26)	526 (100)	**
		Yes	205 (82)	44 (18)	249 (100)	
	Controls	No	584 (19)	2458 (81)	3042 (100)	
		Yes	49 (59)	34 (41)	83 (100)	
Schizophrenia spectrum disorders	RS subjects	No	532 (76)	167 (24)	699 (100)	NS
		Yes	63 (83)	13 (17)	76 (100)	
	Controls	No	606 (20)	2466 (80)	3074 (100)	
		Yes	27 (53)	24 (47)	51 (100)	
Affective disorder	RS subjects	No	484 (77)	146 (23)	630 (100)	NS
		Yes	111 (77)	34 (23)	145 (100)	
	Controls	No	584 (19)	2415 (81)	2999 (100)	
		Yes	49 (39)	77 (61)	126 (100)	
Personality disorder	RS subjects	No	521 (77)	155 (23)	676 (100)	NS
		Yes	74 (75)	25 (25)	99 (100)	
	Controls	No	606 (20)	2472 (80)	3078 (100)	
		Yes	27 (57)	20 (43)	47 (100)	
Mental retardation	RS subjects	No	544 (77)	164 (23)	708 (100)	NS
		Yes	51 (76)	16 (24)	67 (100)	
	Controls	No	611 (20)	2480 (80)	3091 (100)	
		Yes	22 (65)	12 (35)	34 (100)	
Disorders of psychological development	RS subjects	No	565 (77)	170 (23)	735 (100)	NS
		Yes	30 (75)	10 (25)	41 (100)	
	Controls	No	612 (20)	2478 (80)	3090 (100)	
		Yes	21 (60)	14 (40)	35 (100)	
Conduct disorder/ADHD	RS subjects	No	407 (75)	135 (25)	542 (100)	NS
		Yes	188 (81)	45 (19)	233 (100)	
	Controls	No	614 (20)	24,85 (80)	3099 (100)	
		Yes	19 (73)	7 (27)	26 (100)	
Other childhood disorder	RS subjects	No	551 (77)	165 (23)	716 (100)	NS
		Yes	44 (75)	15 (25)	59 (100)	
	Controls	No	623 (20)	2485 (80)	3108 (100)	
		Yes	10 (59)	7 (41)	17 (100)	

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; NS non-significant.

Sig = Statistical significance; Analyzed by the  $\chi^2$  test of association.

remaining less educated. However, the multivariate analysis explained only 16% of the variance (Nagelkerke R<sup>2</sup>) in attaining only compulsory schooling, which indicates that there were other unidentified variables that could explain the majority of the variance.

#### 4. Discussion

In this study, we examined the educational outcomes of former subjects of reform schools. Our results showed that a reform school background is associated with a high risk of having only completed compulsory school education. In Finland, approximately 17% of adults ages 20–29 have completed only compulsory education (OSF, 2016). The corresponding number among former RS residents is approximately four to five times higher, 77%.

Our findings point in the same direction as previous studies on children in OOHC. In a Swedish register-based study, adolescents with an OOHC history were less educated (further education completion rate 37 percentage points lower) than their peers in the general population (Vinnerljung et al., 2005). In our study, the proportion of people with only a basic education is even higher.

Our results are also in agreement with a Finnish national cohort study on in-care adolescents with somewhat similar follow-up time. In this study by Käariälä et al. (Käariälä et al., 2018) 57% of OOHC

population had compulsory school education only when they were 23 years old. This is 20 percentage points lower than the corresponding number – 77% – in our study. Moreover, it is reasonable to assume that the difference is even higher, because the cohort study by Käariälä et al. included all out-of-home placements, RS and other institutions together.

##### 4.1. Educational outcomes in different cohorts

The 1991 cohort was both the best-educated, which was probably since this cohort had the longest follow-up time and likewise, oldest subjects. A prior study by Heino and Johnson (Heino and Johnson, 2010) emphasized that children placed in foster care begin their upper secondary studies later than their siblings who are not in care: many children placed in foster care are still studying their compulsory studies when they turn 18. Thus, it is assumed that they complete basic education later than most of their generation. Based on practical experience, the reasons for late completion may be truancy, many changes of schools, and grade repetition. These problems together lead to late graduation, which is one reason for delayed continuation of education. Another hypothesis for the better educational outcomes in the 1991 cohort may be the longer length of RS placement: 42% of adolescents in the 1991 cohort resided in RS over 1200 days, whereas in the 2006

cohort, the percentage of those residing in RS over 1200 days was only 25% ( $p < .001$ ). In general, the length of the RS placement has shortened over the years (Pekkarinen, 2017). In our study the length of RS placement was not significantly associated with educational outcomes. This might be due to numerous other risk factors present, but it is plausible, that the longer RS placement could have positive effects on education.

One explanation for the cohort differences may be excess burden from psychosocial problems in younger cohorts. For example, affective disorder (Collishaw, 2015) and depression (Mojtabai et al., 2016), have become more prevalent among adolescents during the years. An increase in the rates of two or more Diagnostic and Statistical Manual of Mental Disorders (DSM) psychiatric diagnoses among adolescents in residential group homes was reported in a study by Duppong Hurley et al. (Duppong Hurley et al., 2009): the rise between 1995 and 2004 was 24 percentage points. Although there is no recent statistical evidence on this same process among RS subjects in Finland, one could speculate that former RS residents in the younger cohorts might have more psychosocial problems, which in turn may negatively affect the continuation of their studies. For example, in a Finnish register-based general population cohort study, the proportion of psychiatric and neuro-developmental disorders was several percentage points higher in the 1997 cohort than in the 1987 cohort (Gyllenberg et al., 2018). The study does not necessarily indicate that the incidence of those disorders has increased, although it is plausible that the threshold for seeking help for mental health problems is more acceptable than earlier (Gyllenberg et al., 2018), or it may be that treatment for mental health may be obtained more easily.

#### 4.2. Educational outcomes and placement factors in the RS group

Placement instability was associated with low educational outcomes: almost nine out of ten in the RS subjects' group with four or more placements had completed only the compulsory years of education. These findings are in line with previous studies (e.g. Villegas et al., 2014). Likewise, Vinnerljung et al. (Vinnerljung et al., 2005) found that children with a history of unstable, long-term care had a more than threefold risk of having completed compulsory education only compared to their peers. However, in the final logistic regression model, the predictive value of placement instability for educational attainment was not significant.

Multiple placements usually mean that children placed in care also change school many times. For example, Pecora et al. (Pecora et al., 2006) found that two-thirds of the children placed in foster care had a history of multiple school changes. In our study, one-third of the former RS residents had four or more placements. We had no data on the number of their school changes, but it is safe to assume that these RS adolescents had several. A significant challenge with school changes is that the new school may receive the RS resident's school documents only after many months; thus, the new teacher does not know where to start or what to teach. In addition, these documents may be partial and imperfect or even lost (Zetling et al., 2004). Since RS residents' school history may be highly fragmented, this may have a negative effect on their schooling.

Placement instability may be due to several reasons, but RS adolescents are the most challenging child welfare clients to care for and to bring up. It can be assumed that one reason for placement changes is these adolescents' various mental and behavioral problems. For example, disorders of psychological development or specific neuropsychological deficits may cause both behavioral problems and educational difficulties. Additionally, adolescents placed in RS have many psychiatric symptoms, not all of which are diagnosed by the RS personnel (Manninen et al., 2010). Although our results showed non-significant results for impacts of various mental health problems on educational attainment, it is plausible that if these problems go undiagnosed, they do not show in the registry data and when

underdiagnosed, compromise the predictive value of registry data.

In our study, former RS residents benefited educationally if they participated in aftercare programs. Likewise, a prior study by Kristofersen (Kristofersen, 2009) reported that those who received aftercare were better educated than those without aftercare: two-fifths of those who were provided with aftercare continued upper secondary education, whereas the proportion of those without aftercare was one in three. In an American study by Leathers and Testa (Leathers and Testa, 2006) suggested that adolescents who do not participate aftercare have more behavioral problems than those who approve support. It can be speculated that those RS adolescents who refuse to participate in voluntary aftercare programs have more problems than those who accept support. It is plausible that these adolescents are also reluctant to continue their studies beyond compulsory schooling.

We found no relationship between the length of RS placement and education in a  $\chi^2$  test. However, multivariate logistic regression analysis showed that placement in RS for 901 to 1200 days was a significant predictor of remaining less educated. It is plausible that this result appears to be a false positive; if there is a connection between the education and the length of RS placement, it is probably linear. In contrast to our findings, previous studies have proven that the length in care improves the educational outcomes of child welfare clients. For example, Vinnerljung and Sallnäs (Vinnerljung and Sallnäs, 2008) discovered that among adolescents who had been in care for more than two years, the odds ratio of having basic-level qualifications only was diminished.

Our results failed to replicate the previous findings suggesting that the age at the time of the first out-of-home placement influences the educational level of former RS subjects. As Vinnerljung et al. (Vinnerljung et al., 2005), Österberg et al. (Österberg et al., 2016), and Kestilä et al. (Kestilä et al., 2012) have ascertained, the educational outcomes are lower among children placed in care during their teens. It is plausible that our findings are not consistent with previous findings, since persons with a history of RS placement have multiple, cumulative risks beginning early in life. For example, psychosocial problems may have more of an effect on them than the age at which they were placed in care.

#### 4.3. Educational outcomes and specific demographic factors in both groups

In our study, the educational attainment of former RS students was not gender specific. Previous research has shown mixed results when gender differences and schooling of children with a history of out-of-home placement have been investigated. Our results are supported by some studies (e.g. Vinnerljung et al., 2005), but is contrary to research suggesting that in this subgroup, girls also complete higher level of education more often than boys (Heino and Johnson, 2010; Viner and Taylor, 2005; Vinnerljung and Sallnäs, 2008). The different results may derive from the different study populations. RS adolescents are a highly pre-selected subgroup of people who have various problems. Since gender impact is relatively small, it may be obscured by other factors.

In contrast to earlier findings, our study does not confirm that being a teenage mother increases the risk of poor educational outcomes (Vinnerljung and Sallnäs, 2008). As mentioned earlier, a plausible explanation for this is the small effect size compared to other, intertwined problems of RS adolescents.

Our study corroborates that substance-related disorders are negatively associated with the continuation of higher level of education. These findings are in accord with previous studies (Arria et al., 2013; Leach and Butterworth, 2012; Macleod et al., 2004; Silins et al., 2015; Townsend et al., 2007). The association may even be higher, since according to RS personnel, up to 80% of RS residents have severe substance-related problems (Pekkarinen, 2017), but only two-fifths have a substance-related disorders diagnosis (Lehto-Salo, 2011).

We did not confirm any association between other mental health problems and educational outcomes among RS subjects. Our results



differ from prior results on mental health problems and education in the majority population. Mental health problems impair educational attainment and increase school drop-out (e.g. (Breslau et al., 2008)). The plausible explanation for the discrepancy between our results and previous studies is that our data did not have enough variance to detect statistical significance, because mental health problems are common among RS subjects. In our study, the association between mental health problems and further schooling among the control population was significant, possible due to a five-fold sample.

However, in clinical practice screening mental health problems is important, as these problems are likely to decrease both well-being and continuation of schooling (McLeod and Fettes, 2007).

#### 4.4. Strengths and limitations

To our knowledge, this is the first large-scale study of former RS residents' educational outcomes. The obvious strength of our study is the utilization of comprehensive and high-quality register data with practically no drop-outs. In Finland, systematic registry data collection is operated by the state on a year-to-year basis. In addition, the long follow-up time improves the reliability of the results.

There are also some limitations. The choice of explanatory variables was guided by previous studies on child welfare clients. However, the available register data set some limits on the study. First, we did not have access to the parents' educational backgrounds. Prior studies have noted the importance of parents' educational attainment; for example, Vinnerljung and Hjern (Vinnerljung and Hjern, 2011) have shown that mother's high educational level is associated with better educational outcomes for their children. Second, our data did not contain information on the reasons for RS placements. Previous studies have demonstrated that children placed in foster care for conduct problems have lower rates of post-secondary school attendance than their peers placed in care for other reasons (e.g., Vinnerljung and Sallnäs, 2008). Although we had no information on the reasons for RS placements, based on Kitinoja's (Kitinoja, 2005) study, we may assume that almost all former RS residents have had behavioral problems. Third, we did not have information on all known factors associated with poor educational outcomes, like learning disability and language disorder. Fourth, mental health variables are not necessarily explicit. It is plausible that adolescents with an RS background do not seek help for their mental health problems, although they may use self-medication, such as alcohol and drugs, as a way of coping. Among the general population, it is known that alcoholism, for example, is often undiagnosed (Fleming, 1997).

#### 4.5. Implications for practice

In our study, those who participated in aftercare programs and finished post-compulsory education stayed in care longer than their less educated peers without aftercare. During the transition phase from OOH to aftercare, child welfare clients need strong support (Courtney and Hook, 2017; Höjer and Sjöblom, 2010). However, care-leavers with severe behavioral problems are more reluctant than other care-leavers to receive aftercare services (Leathers and Testa, 2006), so it is important to figure out how to motivate these care-leavers to accept aftercare services. In addition, since aftercare workers do not have enough time to work with their clients (Oterholm, 2009), more time and resources should be provided for them to support more their clients in further studies. This investment is likely to pay off since adolescents receiving aftercare services during the emancipation phase from care pursue more education more often than those who are exiting care without aftercare services (Backe-Hansen et al., 2014; Kristofersen, 2009). Moreover, due to being reluctant to accept aftercare, it is worth considering if these supportive services should even be mandatory (Mendes et al., 2014; Oterholm, 2009). The effectiveness of aftercare programs might also be an important aspect. Some independent living

programs have shown to increase high school completion rates and enrollment in post-secondary schooling (e.g. Georgiades, 2005; Lindsey and Ahmed, 1999; Montgomery et al., 2006), while other independent living programs are not effective (Valentine et al., 2015). In independent living programs, youth exiting care are prepared for independent life, for example by being taught basic housekeeping skills; providing finance education; helping with graduating from high school and enrolling for further studies and advising them how to find and keep a job (Georgiades, 2005). However, the positive outcomes must be interpreted with caution because of methodological issues, e.g., participants are not assigned randomly, studies often lack a comparison group, samples are small, and participants report the outcomes by self-reports only (Woodgate et al., 2017).

Currently in Finland, aftercare programs are completed by around 21 years of age. It is worth contemplating extending aftercare services up to the age of 25. Extended aftercare is recommended by international research results (e.g. Courtney and Hook, 2017; Gypen et al., 2017). In Hungary, adolescents with a history of out-of-home placement in care are eligible for aftercare up to the above-mentioned age if they continue their studies after compulsory education (Rácz et al., 2013). This policy could be worth implementing in other countries as well. It is plausible that providing aftercare up to the age of 25 improves the motivation of former RS residents to stay in school after the compulsory years. According to the study by Rácz et al. (Rácz et al., 2013), a greater number of adolescents who remained in the post-care system attained higher level of education than those who did not. Although the sample in the research by Rácz et al. was relatively small, this is a promising result, and the subject should be studied more. Similar results were found in a study by Barnow et al. (Barnow et al., 2015): the longer adolescents were given a range of supportive services during the phase of ageing out of care, the more positive was the outcome of continuing with education and obtaining employment. Furthermore, Courtney et Hook's study (2017) verified that if aftercare services are received for longer, the outcomes are better.

Substance abuse problems are among the reasons for an RS placement. Substance-related problems are more demanding than ever, and more adolescents with serious drug problems, e.g., intravenous use, are placed in RS (Pekkarinen, 2017). This poses new challenges for both RS personnel and RS/OOHC system at large. Effective treatment programs should be provided, and cooperation between the RS and the special care personnel in charge of treatment programs should be intensive. One viable option is to consider having treatment and rehabilitation integrated into the daily life of reform schools.

In Finland, vocational education and training were reformed in 2018. For example, all students have their own study plan in which their previous knowledge is considered. In addition, more learning is meant to happen in the workplace. In practice, this has led to a situation in which students have to study more on their own and with fewer classes to attend. Although individualized study plans may be regarded as a welcome reform, it could be speculated that more independence and responsibility may be challenging to former RS subjects who are just beginning to practice living on their own. It appears likely that this reform is an adverse development for former RS adolescents, and the rates of completing upper secondary vocational qualifications may decrease even further. In order to prevent this scenario from occurring, former RS residents' individual needs for support should be studied, and students should be provided supportive measures as necessary.

In the United States, programs have been launched to increase the participation of foster youth in higher education. For example, in a program called "Better Future," supportive and informative events, meetings, and even camps are arranged for adolescents in care with mental health problems. Young adults with a similar background are in higher education classes coach and support the adolescents who are placed in care and furthermore, share their experiences of studying in college. This preparatory program has shown promising effects for increasing the participation of foster youth in further education. (Geenen

et al., 2015.)

Similar programs and practices are worth trying in other countries. In Finland, in an expert-by-experience program, former RS residents share their experience with each other and offer ideas and proposals on how to develop practices in RS. In addition, they visit RS and meet adolescents who are currently placed there. Students with a history of an RS placement could share their knowledge of further education, encourage RS residents to apply for upper secondary education, and act as positive role models. At best, they could even act as personal education trainers for RS residents who are pursuing further education.

Children in Finland are required to complete nine years of compulsory basic education, meaning until the ninth grade or when an adolescent turns 17. Upper secondary education is optional. One useful means of improving the educational level of RS population is to extend compulsory school attendance to include upper secondary studies. A one-year increase in compulsory education age reduces the number of adolescents leaving school early (Cabus and De Witte, 2011).

Extending the compulsory education to further schooling is profitable. In a previous study, extending compulsory school attendance to upper secondary studies increased annual income by 15%, reduced dependency on social welfare payments and the possibility of being unemployed (Oreopoulos, 2007). Adolescents do not necessarily understand the importance of schooling and its effects on better incomes and health, and thus do not continue their studies after completing the compulsory years of education. For that reason, compulsory school attendance should be extended by at least a year after finishing comprehensive school studies.

The current poor education of RS subjects should be regarded as a crucial risk factor in their lives. Growing demands for higher levels of education in labor markets pose challenges to those who have only completed a basic level of education. Although former RS residents are a small subgroup of child welfare clients, society should invest more in them. Although the extension would increase the cost of education, this extra cost is only a fraction of the amount of resources already invested in OOH and RS care, and it is a less expensive alternative than the cost of social exclusion. At the individual level, it would be ethically sound. At the national level, decreasing marginalization is also economically wise.

#### 4.6. Implications for future research

In our study, we explored the educational attainment of former RS residents in comparison with the general population. In future studies, researchers could compare the educational outcomes of former RS residents with the educational outcomes of their peers who have a background in care. Former RS students have more in common with other child welfare clients than with their contemporaries who are not in care. It is plausible that the difference between former RS residents and other children placed in care is not as large as the difference between former RS residents and the majority population.

More, it would be interesting to investigate in detail the former RS residents who managed to attain a higher level of education. Finding the protective factors or circumstances that helped the adolescents with a history of RS placement to complete their studies would be crucial for developing RS care methods.

In our study, the multivariate analysis explained only 16% of the variance in completing compulsory school only, which indicates that there were other unidentified variables that could explain the majority of the variance. Further studies, which aim to identifying these variables, will need to be undertaken. Moreover, to develop a better picture of the relationship between educational attainment in the RS population and background variables, it is plausible that some other method, e.g. Structural Equation Models (SEM), could be more suitable to detect this association.

#### Declaration of interest

None.

#### Acknowledgements

This study was supported by the Finnish Cultural Foundation, the Kymenlaakso Regional Fund, Finland. Grant ID 35182353.

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