

REVIEW

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Suicidality among children and youth in Nordic child welfare services: A systematic review

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Abstract

Existing research has established child welfare (CW) clients as a vulnerable group for developing negative life trajectories, including mental health problems, work- and education-related challenges and premature mortality. Knowledge of later life conditions including suicidality of clients within child welfare services (CWS) in the Nordic countries is scarce. The overall aim is therefore to gain updated knowledge on how children and youth who have received or are receiving CWS interventions from the Nordic CWS fare in relation to suicidality. The population, intervention, comparator, outcome (PICO) framework guided the search through five multidisciplinary bibliographical databases. The population were former and current CWS clients; comparators were from the general population. Six cohort studies were identified (i.e., one Finnish study and five studies from Sweden), all showing evidence of a significantly elevated risk for suicide and suicide attempt in former CWS clients. CWS clients systematically fare worse concerning suicide and suicide attempt compared to their peers from the general population. In particular, former CWS clients should be recognized as being at high risk for suicide and suicidal behaviour later in life. These findings have substantial implications for CWS practice and service delivery regarding long-term follow-up.

KEYWORDS

child welfare population, literature review, Nordic countries, suicidal behaviour, suicide

1 | INTRODUCTION

Suicide and suicidal behaviour remain highly studied and debated across various fields and in society. As one of the leading causes of death, suicide represents a significant public health issue with profound emotional and human costs on workplaces and communities (Ports et al., 2017). In the Nordic countries, suicide is the second most common cause of death among 15- to 24-year-olds (Titelman et al., 2013); in Norway, the suicide rate is approximately 12 per 100,000 (Norwegian Institute of Public Health, 2018), with an increased

prevalence among youth below age 25. Although current suicide rates in the Nordic countries seem relatively low, they were in the top 100 worldwide according to a recent World Health Organization (WHO) report (2020). For the group from 15 to 19 years of age, the rates increased between 2011 and 2016 in Norway, Iceland and Denmark but decreased in Sweden and Finland, according to Eurostat (<https://ec.europa.eu/eurostat/databrowser/view/tps00202/default/table?lang=en>). In countries such as the United Kingdom, the suicide rate for youth between 15 and 19 years of age is rising slightly, and the United States has had a 56% increase in youth suicide in less than two

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decades (Mahase, 2019). Such variances may be explained by different factors; in Finland and Sweden, prevention strategies have been a political priority, which may have provoked societal awareness. In the United Kingdom, areas with socio-economic disadvantages tend to have higher suicide rates, and in the United States, access to lethal methods like firearms is associated with high suicide rates. Use of firearms represent more than half of all male suicides in the United States (Siegel & Rothman, 2016). Youth suicide is likely to be underreported in many Western countries, conceivably related to social stigma, cultural factors or the protection of the bereaved families. Pritchard and Hansen (2014) show that the registered suicides for youths of both genders in the United Kingdom (15–24 years of age) was similar to the number of undetermined deaths at a ratio of 1:1, thus raising the question as to whether suicide among youth is being discounted by society.

Adverse childhood experiences (ACEs) are well-recognized risk factors for suicide and suicide attempts (Brodsky & Stanley, 2008; Felitti et al., 1998). One British survey shows that 16% of a national representative sample had experienced severe maltreatment in childhood (Leenarts et al. 2013). There is strong empirical evidence for an association between ACEs and increased suicide risk across the lifespan (Angelakis et al. 2019). Child welfare (CW) clients are more likely to have experienced ACEs than other populations, and families receiving CW interventions or services (CWS) have a lower socio-economic status (SES) than the general population (Larsen et al. 2018). Parental substance abuse, relationship difficulties and child neglect and abuse are frequent causes for out-of-home placements (Havnen et al. 2009). These children and their parents often suffer from poorer mental health (He & Phillips, 2017). One study report that 50% or more of CW clients in out-of-home care have mental health problems or disorders (Lehmann et al. 2013).

To better understand the life conditions of children within CWS, comparable studies that are cross-sectional are warranted. Evidence-based knowledge from the Nordic CWS on longer-term trajectories is scarce. Nordic CWS operate within a welfare state model with wide-ranging services for children and families. Child protection and CW ambitions are closely interrelated, and the Nordic countries share a 'philosophy of prevention, prioritising supportive and voluntary services with an emphasis on children's rights and needs' (Pösö et al. 2014). Interventions include family support arrangements, as well as out-of-home placements. Even with a strong family-service orientation, the number of children and adolescents in care is relatively high, with the majority in foster care (Burns et al. 2017).

Kristofersen (2005) investigated a Norwegian CWS population from 1990 to 2001 and found a particularly high incidence of violent deaths. Alarmingly, the mortality rate by suicide was approximately eight times higher than in the general child population. Suicidal behaviour comprises suicide ideation, suicide plan and suicide attempt, and the *intention to die* distinguishes these behaviours from nonsuicidal self-injury (NSSI; APA, 2013) and self-injury thoughts. The intensity of a person's wish to die has been shown to predict completed suicide in several studies, among other predictors associated with increased

suicide risk (see Hasley et al., 2008 for review). Backe-Hansen et al. (2014) further argue for the need of more extensive in-depth analyses of more specific key issues due to the increased risk of mortality among CWS children. This marginalized population of children and youth are considered a vulnerable group in many aspects; however, risk factors for suicide and suicide behaviour are evident in the general population were addressing prevention within communities are of importance.

The overall aim of this review is to gain updated knowledge on how children and youth who have received or are currently receiving interventions from the Nordic CWS fare in relation to suicidality compared to the matched general population.

2 | METHOD

2.1 | Identification and selection of studies

Three authors independently conducted literature searches; disagreements were resolved through discussion with a fourth reviewer. Searches were conducted in collaboration with a librarian.

2.2 | Databases

PsychInfo (Ovid), Web of Science, MedLine (Ovid), ERIC and the Cochrane Central Register of Controlled Trials databases were searched from inception on the 3 September 2018 to supplement search 1 October 2018. Supplemental searches were conducted using Google Scholar, IDUNN, the Scandinavian University Press digital publishing platform for academic journals and books, Open Access NORA (Norwegian only), Bergen Open Research Archive (BORA) and OAister. Studies published from 1993 to 2018 were included based upon the Child Welfare Act implemented in Norway in 1993. Only publications in English or Scandinavian languages were included.

2.3 | Study type

The search included systematic reviews, randomized controlled trials, cohort studies, case-controlled studies, cross-sectional studies and surveys.

2.4 | Participants

The studies included children of both genders from two up to 18 years of age with current and former experiences of receiving CWS interventions in the Nordic countries (i.e., Denmark, Finland, Iceland, Norway and Sweden); these countries are similar in the way their CWS agencies are governed and executed. Mixed samples included adults over 18 years old with a history of CWS interventions, both current and former clients who received in-home measures, out-of-home care or after

care. It is well-established that suicide culminates later in life; hence, it occurs when the individual is no longer a recipient of CWS. This statistical occurrence is important within a longitudinal perspective.

2.5 | Comparators

Only studies with children and youth from the general population as comparators were included to ensure that findings were appropriate to address the research question. Studies without such comparison sample were excluded.

2.6 | Outcome measures

Outcome measures were suicide or suicidal behaviour with the presence of intentionality. Absence of intention or desire to die allowed for the distinguishment of suicidal versus nonsuicidal behaviour. Nonsuicidal self-harm, suicide threat or gesture and self-injury thoughts were excluded.

(O) in children and youth (P) who have received or currently are receiving interventions from the CWS in the Nordic countries (I), and how does this overlap with knowledge regarding the general population (C)? Three core keywords were identified: (A) suicide, (B) child protection and (C) children and youth; their synonyms, associated words and abbreviations were also explored. Using the 'subject heading' search tool in PsychInfo, one strategy was to investigate core concepts and relevant synonyms, in addition to discussions and further reviews. Search terms were adapted to fit the search functions of each database to maximize exploration sensitivity. When possible, the title, abstract and keywords were included. Keyword group A (i.e., suicide, suicidal behaviour, suicidal self-injury and suicidal self-harm) was combined with Keyword groups B (i.e., child protection, child welfare, foster home, foster care, orphan, children's home, residential youth care, respite care, placement, displacement, out of home, group home, congregate care, kinship care and relative care) and C (i.e., child, youth, young, teenager and adolescence). Results were stored in EndNote Version X8. Duplication control was performed both manually and with software. All authors discussed and agreed upon the criteria prior to conducting the systematic search and data extraction.

3 | PROCEDURE

The PICO framework guided the primary research question (Huang et al. 2006): What is known about suicide and suicidal behaviours

3.1 | Study selection

A flow chart of the search and selection process is shown in Figure 1. A total of 792 unique articles were first identified, of which

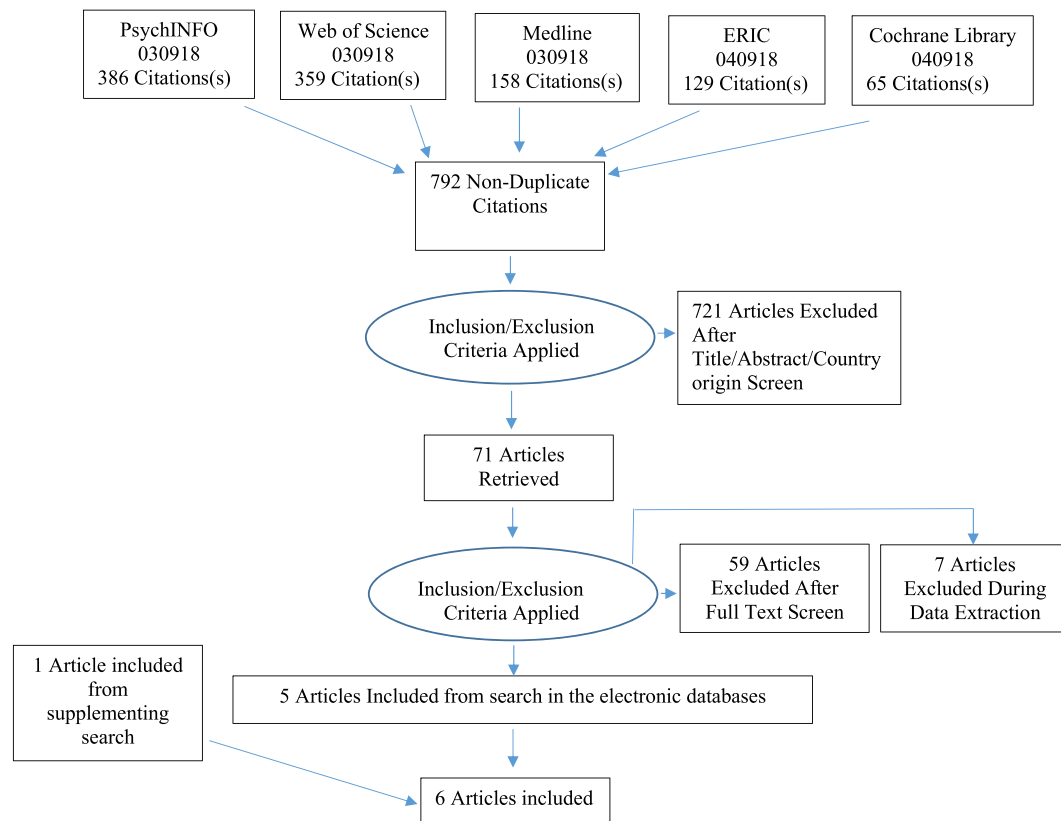


FIGURE 1 A flow-chart of the search and selection process

TABLE 1 The table show the characteristics of the six included studies in the review, with authors, country of origin, design, participants and comparison groups

Study	Country	Design	Participants	
			Study group	Comparison group(s)
Vinnerljung and Ribe (2003)	Sweden	Cohort study applying national social and health register data of all individuals born 1969–1976	All foster care children placed into care before 13 years of age n = 13,100 Children placed in residential care before the age of 7, but not in foster care before the age of 13, not previously received in-home measures (contact person/contact family), nor CWS surveillance (no intervention) n = 10,668	General population n = X
Hjern et al. (2004)	Sweden	Cohort study applying national social and health register data of all individuals born 1973–1982	Intercountry adoptees (outside of Europe) n = 12,240 Long-term care (minimum two years in care before the age of 13, vast majority in foster care) n = 6,437 Other CWS interventions in the family (temporary placements, <2 years) n = 15,868	General population n = 955,326
Vinnerljung et al. (2006)	Sweden	Cohort study applying national social and health data of all individuals born 1973–1982	CWS recipients placed into care (majority in foster care, few in residential care) before the age of 13 in either: Short-term care (0–24 months) n = 6450 Intermediate care (25–60 months) n = 2532 Long-term care (60 months+) n = 3903 In-home measures n = 6450 Intercountry adoptees (outside of Europe only) n = 12,240	General population n = 955,326
Vinnerljung et al. (2012)	Sweden	Cohort study applying national social and health register data of all individuals born 1973–1990	CWS recipients of in-home measures only having “contact person” or “contact family” at age 2–5 years old (born 1980–1990) n = 7,841 Or 10–13 years old (born 1973–1984) n = 7043	General population born 1980–1990 n = 1,005,067 General population born 1973–1984 n = 1,029,237
Manninen et al. (2015)	Finland	Four cohorts identified by national welfare register data as individuals receiving CW intervention of residential school born in 1973–1994 staying in residential schools at the end of 1991, 1996, 2001 or 2006. These groups were followed until 2013	CWS recipients placed at residential schools (RS). Adolescents in RS had severe conduct problems, often including substance abuse, school dysfunction, juvenile delinquency, or mental health problems n = 885	General population sample matched with study group sample by age, gender and place of birth (municipality) n = 4316

(Continues)

TABLE 1 (Continued)

Study	Country	Design	Participants	
			Study group	Comparison group(s)
Wall-Wieler et al. (2018)	Sweden	Cohort study applying national welfare, social and death register data of individuals born 1973–1980	Former female CWS recipients of foster care and/or residential care who had become mothers n = 6331 Former male CWS recipients of foster care and/or residential care who had become fathers n = 5475	General population Female cohort n = 250,506 Male cohort n = 222,758

Abbreviations: CWS, child welfare services; CW, child welfare; x, no comparison group.

721 were excluded due to their country of origin, title or summary. When the remaining 71 articles were screened in full text, 59 were further excluded. The remaining 12 were investigated for data extraction, and seven were excluded. Finally, five articles remained, and one additional article was identified by assessing eligible references in the supplemental search. The review thus contains six articles in total.

3.2 | Characteristics of the included articles

The eligible articles include five from Sweden and one from Finland, published as early as 2003 and most recently in 2018; all except one were peer-reviewed, and all were cohort studies with social health and register data. Suicide or suicide attempt were assessed by hospitalization records as a main or contributory diagnosis with International Classification of Diseases (ICD) -9 or -10 codes (Vinnerljung et al. 2006; Wall-Wieler et al., 2018; WHO, 2004). A suicide attempt is a medical classification as listed by WHO (2004) and refers to the nonfatal attempt to inflict self-harm with the intent to die.

Estimating the total sample size was challenging because different articles used some of the same cohorts (Hjern et al. 2004; Vinnerljung et al., 2006). Populations ranged from 885 (Manninen et al. 2015) to 34,545 (Hjern et al., 2004). The eldest cohort was born in 1969 (Vinnerljung & Ribe, 2003), the youngest in 1994 (Manninen et al., 2015). The studies varied according to CWS interventions; three had outcomes defined as time in out-of-home care (Hjern et al., 2004; Vinnerljung et al., 2006; Vinnerljung & Ribe, 2003), and four exclusively investigated interventions prior to age 13 (Hjern et al., 2004; Vinnerljung et al., 2006; Vinnerljung et al. 2012; Vinnerljung & Ribe, 2003).

The general population cohorts varied in size, from a matched sample of 4316 individuals (Manninen et al., 2015) to approximately two million (Hjern et al., 2004; Vinnerljung et al., 2012; see Table 1). Vinnerljung and Ribe (2003) did not account for size ($n = x$), but they compared the observed number of deaths during the time of risk exposure (CWS intervention) with the expected number of deaths based on mortality rates in the general population. They define 'other CW interventions' as the comparison group, in contrast to the 'general population'. In Hjern et al. (2004) and Vinnerljung et al. (2006), intercountry non-European adoptees below 7 years of age were included as CW clients. None of the studies report the justification, or purpose of any intervention.

4 | RESULTS

Three articles report exclusively on completed suicides, two on suicidal behaviour, and one on both suicide and suicidal behaviour. With regard to suicidal behaviour, only 'suicide attempt' was an outcome. Other ACEs are associated with increased suicide risk and are therefore presented along with general mortality where the cause of death

TABLE 2 An overview of the results from the included studies on suicide risk and suicide behaviour risk in the Nordic child welfare population

Study	Type of intervention	Outcomes for recipients of CWS interventions	
		Suicide risk compared to GP adjusted models	Suicide behaviour adjusted models
Vinnerljung and Ribe (2003)	Preteen foster-care; C = RC before age 7 but not in foster-care before age 13; IHM only before teens (CP) and surveillance from CW only	FC = 2.45-fold risk ^{d*} C = 2.44-fold risk ^{d*}	N/A
Hjern et al. (2004)	Intercountry adoptees (IA; non-CW); LTFC; other CW interventions	IA (non-CW) = 3.5-fold risk ^{b*} LTFC = 2.2-fold ^{c*} Other CW = 1.7-fold ^{c*}	N/A
Vinnerljung et al. (2006)	Pre-teen CWS interventions of either; STC (mix of FC and RS), IC (mostly FC), LTC (mostly FC) or IHM (CF). C = IA and GP	N/A	CWS groups have four to five-fold risk of suicide attempt than GP and twice as likely than IA ^a Twofold risk after adjustment for CW recipients ^{***}
Vinnerljung et al. (2012)	RI (CF/CP) either when 2–5 years or when 10–13 years. C = no IHM (CF/CP)	N/A	There are considerably more CF/CP children who have been hospitalized because of suicide attempts in both age groups 1.3–1.5 ^{b**}
Manninen et al. (2015)	RS (adolescence with severe conduct disorder)	Sevenfold risk* (prevalence: 2.2% of RS group vs. 0.3% of GP) ^b	N/A
Wall-Wieler et al. (2018)	Parents who received CW care in childhood. C = parents with no CW out-of-home care in childhood	Mothers with out-of-home care: 2.35-fold risk ^{***} Mothers and out-of-home care for own child 5.52-fold risk ^{***} Mothers in GP with out-of-home care for own child 3.23-fold risk ^{c***} compared to GP mothers with no interventions Fathers: No elevated risk to GP fathers ^f	Parents with out-of-home care: More likely suicide attempt before birth of their first child

Abbreviations: S, suicide; SA, substance abuse; E, external cause (hereunder traffic accidents); U, unknown cause of death; RS, residential school; LTFC, long-term foster care; IA, intercountry adoptees; RC, residential care; IHM, in-home measures; FC, foster care; CF, contact family; CP, contact person; C, controls; GP, general population; CWS, child welfare services; CW, child welfare; N/A, not applicable.

^aAdjusted for sex and year of birth.

^bMatched for sex, age and place of birth, but not adjusted for SES and psychosocial risk in parents.

^cAdjusted for variables at birth of first child (age, SES), and variables before birth of first child (alcohol misuse, drug misuse, psychiatric disorders, committed a violent crime and suicide attempts).

^dAdjusted for sex, year of birth, biological parental hospitalization due to substance misuse, alcohol misuse or psychiatric illness and SES indicators in biological mother.

^eAdjusted for sex, age of first placement, total time spent in care and age at risk exposure.

^fAdjusted for sex, year of birth, birth parent ethnicity, maternal SES indicators, birth parent psychiatric disorder, drug and alcohol abuse.

^gAdjusted for sex, year of birth, geographical place of birth, mother's country of birth, teenage mother at birth, single mom, mother SES, parental psychiatric diagnosis, or substance and/or alcohol misuse, parental criminal record.

* $p < 0.001$. ** $p < 0.01$. *** $p < 0.05$.

is unclear. All data reported are adjusted risk ratios (RR), unless otherwise indicated (see Table 2).

4.1 | Suicide and child welfare services intervention

Five articles discuss completion of suicide, indicating an increased suicide risk for individuals who have received child welfare services (CWS) interventions; for all six articles, suicide risk extends from being twofold to sevenfold compared to the general population. All RRs were statistically significant ($p < .05$), except for males who were in

CWS as children and are now fathers to their own children (Wall-Wieler et al., 2018; see Table 2).

Adolescents placed in residential schools (RS) had the highest suicide risk (i.e., sevenfold compared to the general population; RR = 7; Manninen et al., 2015). Those with 'other CW interventions' had the lowest suicide risk (i.e., RR = 1.70; Hjern et al., 2004). Both Hjern et al. (2004) and Vinnerljung and Ribe (2003) found an elevated suicide risk in long-term foster children with RR = 2.20 and RR = 2.45, respectively. Hjern et al. (2004) also found an increased risk for intercountry adoptees (i.e., RR = 3.50; only unadjusted RR were reported as SES indicators; morbidity and psychosocial risk factors of biological parents were unavailable); children receiving other kinds of

interventions had a RR of 1.7. In Vinnerljung and Ribe (2003), 'other CW intervention' gave a RR of 2.44, with slight variation for foster care children (i.e., RR = 2.45). Overall, the CWS population has a significantly higher suicide risk compared to the general population.

4.2 | Suicide and gender

Three of the studies include a discussion of gender. In former RS adolescents, Manninen et al. (2015) found that one-fourth of the males had died from suicide compared to one-fifth of the females. Vinnerljung and Ribe (2003) reported more suicides among males (i.e., both long-term foster children and 'other CW interventions', RR = 2.31 and RR = 2.76, respectively, $p < .001$) compared to females (i.e., long-term foster children RR = 2.82, $p < .01$; 'other CW intervention' RR = 1.52, not significant). The authors emphasize that the few observed suicides among females have low statistical power. Wall-Wieler et al. (2018) show that among former foster clients and residential clients becoming parents themselves, females had a two-fold suicide risk compared to the general population. If their child was placed into care, the adjusted RR was 5.52. Mothers in the general population with similar experiences displayed a significantly elevated suicide risk ($R = 3.23$), which was not observed among fathers, compared to the general population when adjusted for confounders.

4.3 | Suicidal behaviour

Suicidal behaviour was highlighted in three studies. All CWS interventions resulted in a four to fivefold risk of being hospitalized for attempted suicide compared to the general population (unadjusted model) and in a twofold risk compared to intercountry adoptees (Vinnerljung et al., 2006). Adjusted for SES and psychosocial risk factors among biological parents, it remained double. Vinnerljung et al. (2012) report a considerably higher risk of attempted suicide for individuals receiving in-home measures (i.e., RR = 1.3–1.5). If formerly placed into CWS care, attempted suicide was more likely to occur prior to parenthood (Wall-Wieler et al., 2018; missing p value). The risk of attempted suicide was approximately equivalent for adolescents in care (13–17 years of age) and young adults out of care (19–27 years of age), with minor variance in lengths of care. Both groups had a twofold risk of suicide attempt compared to their peers in the general population (Vinnerljung et al., 2006). This study specifically investigated suicide attempt among youth whilst in care.

4.4 | Other ACEs

Three studies point to specific adverse experiences that increase the risk of suicide attempts and other negative outcomes for the CWS population, such as maternal SES indicators and psychosocial risk factors of biological parents (e.g., psychiatric diagnosis, substance and/or alcohol misuse and crime). According to Hjern et al. (2004), 51% of

mothers to children in care received social welfare; in 41% of households experiencing out-of-home placement, either one or both parents had been hospitalized due to substance- or alcohol misuse, psychiatric disorders, or all three. Parents of children receiving short-term placement, or any in-home intervention compared to parents from the general population with corresponding difficulties, constituted 23% and 3%, respectively. Parents of intercountry adoptees fared better on SES indicators and psychosocial risk factors compared to parents in the general population; time spent in care was correlated to negative outcomes, including parental SES and psychosocial risk factors (Vinnerljung et al., 2006). Note that Hjern et al. (2004) and Vinnerljung et al. (2006) apply the same parental birth cohorts. Vinnerljung et al. (2012) show that more children receiving in-home interventions had biological parents with low SES compared to the general population and several risk factors (e.g., criminal records).

4.5 | General mortality

Four studies include general mortality data obtained from the National Causes of Death Register. Because suicides may be concealed, this information seems relevant. Among CW cohorts, mortality is associated with substance-related death (Hjern et al., 2004; Manninen et al., 2015); external causes; 'unknown' (deaths occurring abroad, Finnish authorities not able to determine cause of death; Manninen et al., 2015); 'avoidable deaths' (i.e., avoidable natural causes, drug overdose, unintentional injuries and homicide; Hjern et al., 2004); 'unnatural deaths' (i.e., injury and poisoning), 'suicide/uncertain' (Vinnerljung & Ribe, 2003); and medical cause (i.e., disease; Manninen et al., 2015; Vinnerljung & Ribe, 2003). Two studies (Hjern et al., 2004; Vinnerljung & Ribe, 2003) show that former foster children had higher mortality in their young adulthood (both $p < 0.001$). When adjusted for age and gender, receiving one intervention (as a contact person or contact family) resulted in higher mortality risk after age 16, compared with children from the general population (i.e., RR = 2.7–2.8, $p < 0.01$; Vinnerljung et al., 2012). Manninen et al. (2015) observed an overall sevenfold risk of mortality (including suicide) among former RS adolescents ($p < 0.001$). The risk increased after age 18, with a peak at age 25 for males and in the early 30s for females. Long-term foster care, as well as other CWS interventions, increased age and gender adjusted hazard ratios for 'other avoidable deaths' compared to the general population (i.e., RR = 2.5, 95% CI [1.6, 3.7] and RR = 2.8, 95% CI [2.1, 3.6] respectively; Hjern et al., 2004). For former foster children placed prior to the age of 13 (aged 19–26 at follow-up) and for youth with ACEs without interventions, the mortality rates were moderate but significantly elevated compared to their peers in the general population (i.e., foster children RR = 1.59; comparison group RR = 1.84, $p < 0.001$; Vinnerljung & Ribe, 2003). Hjern et al. (2004) classified 'other CW intervention group' as residential care prior to the age of seven, in-home measures (e.g., CWS surveillance, low intensive intervention), experiencing temporary placements of a sibling, thus generating large within-group variations in intervention intensity, together with a variety of motives for

conducting any of the above-mentioned interventions. Highly intensive interventions combined with low intensive in-home measures or no-intervention (i.e., surveillance only) gave a 0.001 lower RR for mortality compared to long-term foster care (Vinnerljung & Ribe, 2003), and 0.5 lower RR for suicide (Hjern et al., 2004).

All RRs are adjusted for a host of co-variables for accuracy purposes. However, both Vinnerljung and Ribe (2003) and Manninen et al. (2015) lack adjustments for SES and psychosocial risk factors. Hence, the potential of amplified and skewed results should be considered.

5 | DISCUSSION

This systematic review synthesizes quantitative research on recipients of CWS interventions in the Nordic countries related to suicide and suicidal behaviour from 2003 to 2018. To the best of our knowledge, this is the first review comparing the Nordic CWS population with general population cohorts.

The eligible articles comprehend six cohort studies; three of the studies report on suicides among the CWS population, two on suicidal behaviour, and one on both suicides and suicidal behaviour. For suicidal behaviour, suicide attempt is the outcome variable. The main finding is that all included studies show an increased risk of suicide in the CWS population, where adolescents placed in RS represent the most vulnerable group, with a sevenfold suicide risk compared to children. Youth receiving in-home intervention or temporary out-of-home placements showed the lowest suicide risk ratio of 1.70. Long-term foster children and intercountry adoptees have an increased suicide risk compared to their peers in the general population. Males formerly placed in RS with a prolonged history of foster care or other CWS interventions were at higher risk for suicide than females. However, females formerly in CWS care have a twofold suicide risk compared to the general population, and if their own children are placed into care, the risk significantly increases. The general mortality rate is elevated in former foster children and residential school children. Experiencing CWS interventions increases the risk of attempting suicide, not only compared to the general population but also compared to intercountry adoptees. Alarming, the risk is evident for adolescents whilst in care and for youth previously in care. The accumulation of other ACEs is highly represented in the CWS population, thus adding established risk factors for suicidality.

The elevated suicide risk in the CWS population, coupled with low SES and more psychosocial problems, is likely caused by increased social differences in the Nordic countries. Hjern et al. (2004) noted large SES differences, with the lowest score for parents of long-term foster children compared to parents of intercountry adoptees. In Norway, children of families with low SES are overrepresented in the CWS system (Fauske et al. 2018; Kojan, 2011). Katz et al. (2011) note that 51% of children and youth experiencing out-of-home care had parents with one or several psychosocial problems (including admittance to a psychiatric hospital) and thus an elevated prevalence of ACEs compared to parents of children receiving other CWS interventions and to the general population.

Our findings reveal a disturbing mortality rate. Manninen et al. (2015) report high rates due to external or unknown causes, and substance-related deaths among adolescents in RS had a 24-fold rate compared to the general population. Kalland et al. (2001) found extensive mortality rates in the Finnish CWS registry compared to the general population and the manual labour class, concluding that CWS fail to protect adolescents from self-endangering behaviour whilst in care and during the transition to independence. Hjern et al. (2004) found a twofold mortality risk in the CWS population and a significant increase in deaths due to substance abuse, unintentional injuries, or homicide. The authors conclude that there was no indication that CWS interventions improved the chance of survival during adolescence for children at risk, since the risk of death was worse rather than better than for youth from homes with similar psychosocial characteristics [who did not receive interventions] (brackets by authors).

In former residential school adolescents, 67% of deaths were caused by traffic accidents (Manninen et al., 2015). Rockett et al. (2014) argue that substance-related deaths represent unrecorded figures, and deaths by intoxication are acknowledged to underlie suicide rates. A report from Backe-Hansen et al. (2014) found that within the period from 1990 to 2010, 19.8 per 1000 recipients of any CWS intervention had died 'violently', compared to 7.04 per 10,000 in the general population. Another report shows that among male CWS recipients, more than twice as many are killed in traffic accidents compared to males in the general population (Kristofersen, 2009). There is evidence that 2%–6% of such deaths are, in fact, suicides (Pompili et al., 2012), although it is hard to determine suicide by motor vehicle crash apart from perhaps collisions with heavy goods trucks or trains or driving off the road. Nonetheless, this represents a drawback of cohort-registry studies.

A large proportion of current and former CWS children are eligible for disability benefits due to poor mental health (Vinnerljung et al. 2015). Many of these children have less education, and those who are unwillingly removed from their homes perform worse academically (Leonard et al. 2016). Children in out-of-home care need specific attention to improve their academic skills (Vinnerljung & Sallnäs, 2008). Pritchard and Williams (2009) address the risk of suicide by showing that young men who are permanently-excluded-from-school (PEFS) when adolescents display a suicide rate 133 times that of their peers in the general population. To best support these children, collaboration between schools and CWS is vital.

Gender was rarely discussed in the articles, and this represents a challenge in developing conclusive remarks relevant to the CWS population (as noted in Vinnerljung & Ribe, 2003). However, Wall-Wieler et al. (2018) investigated the role of parenthood and intergenerational out-of-home placement and found that mothers formerly placed in CWS care had a 2.3-fold risk of suicide before having their first child, compared to mothers in the general population. Controlling for confounders, the suicide risk rose sharply to 5.5 if both mother and child were placed into CWS care. Parenthood may represent a significant protective factor against suicide, especially in younger females

(Qin et al. 2003). The cumulative disadvantage for these mothers should therefore be acknowledged by providing more adequate preventive health services.

Child welfare services recipients of foster care or residential care having a significant suicide risk was a consistent finding across the three studies investigating long-term interventions. In particular, in individuals enrolled in RS of high intensity and length, the suicide risk was sevenfold compared to the general population (i.e., adjusted for sex, age and birthplace; Vinnerljung & Ribe, 2003; Hjern et al., 2004; Wall-Wieler et al., 2018). In the Nordic countries, foster care is normally of longer duration than time spent in institutions. Children receiving the most intensive and lengthy interventions have an elevated risk of committing suicide or suicide attempts, as shown by Katz et al.' (2011) investigation of youth in out-of-home care (>30 days). They found a significant decrease in suicide attempts after the termination of out-of-home care. The duration and intensity of interventions seem to covariate with negative outcomes where the likelihood of suicidal ideation among youth increases parallel to time spent in CWS care, with depressive symptoms as mediator (Anderson, 2011). Hence, efforts targeting suicidal ideation and depression are preventive for children and youth receiving long-term out-of-home care.

In Sweden, the age limit is 18 years of age for providing CWS interventions (or 21 years in cases of mandatory care orders), and the duration of care is normally until the end of upper secondary school at age 19. Local municipalities seldom implement specialized programs or dedicated services for this group (Höjer & Sjöblom, 2010). Norway recently legally approved aftercare support continuing until the age of 25. If aftercare is not provided, CWS must supply the reasons. We agree with Hjern et al. (2004) that more systematic use of aftercare may prevent deaths among children at risk.

Hjern et al. (2004) note that multiple placements tend to increase suicide attempts. In Kaye et al. (2015), youth in residential care, on average, experienced 3.34 placements, ranging from one to 25 in addition to their original home. This is strongly associated with the development of mental disorders (Lehmann et al., 2013). Broken relationships may negatively affect feelings of belonging. Thwarted belongingness is an interpersonal cognition that can ignite the self-hate and shame (Van Orden et al., 2010) recognizable in major depression (Bryson et al. 2019). Such profound negative emotions are often reported by individuals at risk of suicide, which is addressed by the ideation-to-action framework (Joiner, 2005; Klonsky & May, 2015; O'Connor, 2011). Youth within CWS reporting stronger bonds to their caregivers have less suicidal ideation (He et al. 2015) and, therefore, a diminished risk of engaging in dangerous behaviour. Multiple placements may cause insecure or disorganized attachment, and there is an association between insecure attachment, suicidal ideation, and suicide attempts in adolescents (Hjern et al., 2004; Sheftall et al. 2014). Further, Hjern et al. (2004) show that the mortality rate diminishes for adoptees but remains significantly elevated for youth designated to temporary CSW arrangements, thus highlighting the role of social support and a sense of belongingness.

6 | STRENGTHS AND LIMITATIONS OF THIS REVIEW

The overall findings were extracted from a comprehensive literature search. All the included studies are cohort studies, which are at the lower end of empirical evidence (Dwan et al. 2013). Even so, we believe that retrospective cohort designs are valuable for collecting evidence and knowledge on children and youth within CWS according to the defined characteristics. However, when different studies refer to the same cohort for comparison, some biases may be problematic to disclose, as in Vinnerljung et al. (2006) and Hjern et al. (2004). Nonetheless, the six included studies embracing high cohort numbers all provide evidence for heightened risk of suicide and suicide attempt among former CWS recipients compared to the general population when adjusted for confounders such as SES, psychosocial, and mortality-related factors.

Peer-reviewed studies conducted in the Nordic countries on suicidality in CWS populations are scant. A recent systematic review and meta-analysis on the prevalence of suicide and suicidal behaviour by Evans et al. (2017) demonstrates the challenges that arise when studies fall outside the inclusion criteria. The review comprises five cohort studies from the U.S., Canada, the UK, and Australia, and it supports our findings of high prevalence of suicide attempt and ideation in the Nordic CW population. Although the paper is not peer-reviewed, but rather a report based on extensive register data analyses from well-acknowledged Swedish researchers, we have no reason to question the evidence.

Most studies focus on children receiving long-term CWS interventions. During the last 10 to 20 years, in-home measures in the Nordic countries have increased, which may be explained by the augmented attention on community health prevention. Paradoxically, there is limited evidence-based knowledge on how the CWS population fare, and measures are not being sufficiently evaluated through research (Christiansen et al. 2012). Except for one Finnish study, research on suicidality when compared with the general population were exclusively Swedish. Our search criteria were unable to detect studies conducted in Iceland, Norway, or Denmark. The Nordic countries in general should invest in more systematic research and evidence-based knowledge on children and youth in CWS care concerning suicide risk and suicidal behaviour.

7 | CONCLUSION

Regardless of methodological issues, this review points to the fact that children and youth in CWS systematically fare worse with regard to the risk of suicide and suicidal behaviour compared to their peers in the general population. Former CWS clients should be recognized as high-risk for suicide later in life. Children and youth may not receive necessary aid, as shown in Vinnerljung and Ribe (2003) and in Hjern et al. (2004), who found a twofold risk of suicide compared to the general population.

The findings from this review, coupled with a range of supporting evidence, call for greater attention to the mental health needs of children entering CWS. Implementation of a routine mental health screening is needed, along with a thorough identification of treatment needs and support. A specific awareness of the transition to adulthood is essential, including measures which aim to strengthen school performance and social skills. When children and youth display suicidal behaviour in any form, this should require automatic responses from schools, health care services, and other authorities within the community. Providing sufficient early prevention aid, support, and follow-up may save lives. Child welfare services personnel and leadership should engage in competence building to develop skills to confidently detect and respond to suicidality. The potential is present within the complex welfare states in the Nordic countries; however, the potential seems repressed by systemic and financial barriers, which calls for political effort and power.

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CONFLICT OF INTEREST

All authors hereby declare that there is no conflict of interest.

DATA AVAILABILITY STATEMENT

No datasets were generated or analysed during the current review.

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