

Received: 09/05/2023

Accepted: 03/10/2023

Keywords:

Adverse childhood experiences, child abuse, child maltreatment, health, looked after children and young people, trauma informed care, Malta.

DOI:

<https://doi.org/10.17868/strath.00087196>

Original Research Article

Health characteristics of looked after children and young people in residential homes in the Maltese islands

Kevin Borg^a, Daniel Camilleri^a, Janice Mifsud^a, Tania Borg^b

^a Foundation for Social Welfare Services, Malta, ^b National Statistics Office, Malta

Abstract:

Looked after children and young people are a vulnerable group of minors exposed to adverse childhood experiences (ACEs), who have greater health needs. This study explored the health characteristics of the population of Looked after children and young people residing in residential care in the Maltese Islands run by the newly established looked after children and young people healthcare service, which also coincided with the relaxing of Covid-19 restrictions. The quantitative data were gathered in the form of a prospective audit. The population of looked after children and young people (N=200) showed that 90 per cent (n=180) were victims of child maltreatment. Ninety-four per cent (n=188) had at least one physical health issue, 60 per cent (n=119) at least one mental health problem, and 59 per cent (n=20) of minors under six had at least one developmental issue identified. Thirty-seven per cent (n=63) of looked after children and young people in school were statemented, indicating significant learning difficulties. Forty-four per cent (n=72) were found to be overweight/obese. This study highlights the importance of specialised healthcare services for looked after children and young people that can detect health needs specific to this group and influence pathways and policies to help improve their health outcomes. Findings further emphasise the importance of therapeutic care settings, with trauma-informed staff, who can promote resilience in looked after children and young people.



Introduction

Looked after children and young people are a group of vulnerable minors who, for one reason or another, have been removed from their family and placed into alternative care. Most of these vulnerable minors have been exposed to social turmoil, including child maltreatment and/or other traumatic events considered to be major adverse childhood experiences (ACEs). These are known to increase the risk of negative effects on the physical and mental health of looked after children and young people both in the short-term and in the future (Alik et al., 2022; NICE, 2021). This also has an economic impact at a macro level, whereby 'in countries such as the UK the combined attributable costs for ACEs have been estimated to be around 78.6 billion USD, around 2.8% of GDP' (Hughes et al., 2021). Minors in care are at a greater risk of having unmet medical needs such as missed vaccinations that protect against communicable diseases (Walton & Bedford, 2017), as well as increased physical and developmental problems when compared to aged matched peers who are not living in alternative care (Hadfield & Preece, 2008; Martin et al., 2014; Meltzer et al., 2003; Rodrigues, 2004; Sempik et al., 2008; Steele & Buchi, 2008). Similarly, increased psychological, mental health and learning difficulties have been found in this vulnerable group, partly due to the fact they have been exposed to chronic toxic stress, which occurs when the body's fight or flight response has been activated too often or for too long (Alik et al., 2022; Burge, 2007; Erol et al., 2010; Ford et al., 2007; Garcia & Courtney, 2011; Milburn et al., 2008; Oswald et al., 2010; Sawyer et al., 2007; Ståhlberg et al., 2010). When compared to the general population, increased health related risk-taking behaviours have also been documented in looked after children and young people, including increased rates of tobacco and illicit substance misuse, and increased rates of sexual risk-taking behaviours (Ahrens et al., 2010; Carpenter et al., 2001; Meltzer et al., 2003; Williams et al., 2001). The wide variation in prevalence rates in the available studies may reflect the heterogeneity present in these studies. Methodological weaknesses in the evidence available further limits the use of observed prevalence rates, although certain health issues have been consistently observed amongst various studies.

The need for specialised medical care for looked after children and young people has been widely recognised. Evidence from other countries, such as the UK, has shown that prior to the development of specialist services (including named and designated professionals for looked after children and young people), several challenges were identified including inconsistent, delayed, or repeated health assessments of variable quality and lack of consistent healthcare (Department of Health & Department of Education, 2015; NICE, 2021). In Malta, the Minor Protection (Alternative Care) Act was established in 2019 with the aim of safeguarding, protecting, and prioritising the minor's best interests and providing permanency of care for those living in alternative care (Minor Protection [Alternative Care] [Malta] Act, 2019, c. 602). The Directorate for



Alternative Care (Children and Youth) was established during the same year in Malta, in keeping with provisions in the legislation. The same directorate, working within the Foundation of Social Welfare Services (FSWS) in Malta, identified the need for specific healthcare services for all children in alternative care. The Looked After Children Healthcare Service (LACHS) was established in January 2021, consisting of one consultant paediatrician and two nurses. Prior to the LACHS, the medical child protection team was assessing children in out of home care needing medical attention, however, the service could not be offered to all children in out of home care due to limited resources and the volume of safeguarding work. The aim of the LACHS was to have a specialised service offering a holistic approach in assessing the health needs of looked after children and young people, through working with the minor, their carers, the minor's family, and other professionals involved in their care. The service also aims at ensuring that the healthcare needs of every looked after minor are being met and that they are safeguarded through co-ordinated services that are child-centred and in line with the Maltese Social Care Standards Authority (SCSA) guidelines for children in alternative care (Social Care Standards Authority, 2020) and the United Nations Convention on the Rights of the Child (UNCRC).

Up to the date of the study, there were just over 400 minors living in out of home care in Malta and Gozo, half of whom resided in foster care and half in residential care, indicating that both type of placements still played a very important role in the provision of out of home care in Malta, similar to a number of other countries. This is partly explained by the fact that available foster placements are limited, but also that certain minors, particularly more challenging vulnerable youth, may be more suited to a therapeutic residential setting when available. Most residential care settings in Malta have shifted towards a family-based therapeutic model, with smaller numbers of children and youth in each care unit and where children under five are prioritised for foster care placements. This paper sought to delve into the health characteristics and medical needs of the population of looked after children and young people residing in residential care in the Maltese Islands in order to better understand their health needs and to recommend improvements to services, with the aim of improving health outcomes in this vulnerable group. This study also coincided with the easing of Covid-19 pandemic restrictions during which minors in residential care were not regularly assessed due to many homes going into lockdown/semi-lockdown and where health resources were diverted to dealing with the pandemic.

Method

Ethics approval for the study was obtained from the Malta University Research Ethics Committee, application ID: SWB-2022-00249.

All looked after children and young people below the age of 18 years residing in residential/community homes were assessed by the LACHS during 2021



(N=200). The lead key worker referred each minor in residential care to the LACHS for an assessment, using a standardised form that provided a detailed background on the minor, including the social history and reasons for entering care. Prior to each consultation, a health profile was prepared for each minor to help build a complete health history. The minor's formal immunisation records were reviewed from the official primary healthcare portal that stores immunisation records for all minors residing in Malta. Furthermore, telephone interviews took place with the minor's parents in order to obtain any relevant past medical history, as well as any relevant family history. Health information obtained from online health records was reviewed, including any previous medical history, as well as past and upcoming health appointments. LACHS also reviewed medical records kept by other health professionals who had already been involved in the healthcare of these minors.

Prior to each consultation, the respective residential home was provided with an information sheet outlining the aims and objective of the service and what the health assessment would entail, including the fact that findings may have an impact on the minor's care plan and that data may be used to improve service provision. The home was encouraged to share a child-friendly version with the minors in their care. The health assessments were not mandatory, and the child or young person could refuse such an appointment. Health assessments took place in the minor's respective care home in the presence of the main caregivers (unless they preferred to be seen alone), which could have further contributed to the high response rate. A thorough health history was taken from the main caregiver, and from the minor where appropriate, covering the physical, developmental, and emotional/behavioural well-being of the minor (a specific proforma was used). This also included information regarding education, as well as resilience promoting factors including extra-curricular activities. Every minor was given the opportunity to speak to the team alone and also to voice any concerns or feedback relating to their care they wanted to pass on.

A physical examination of each minor was carried out. Growth parameters were taken by the same consultant paediatrician for every minor using the same standardised tools, namely a portable Marsden Leicester stadiometer and medical weighing scale. The apparatus was regularly checked and recalibrated as needed. Body mass index (BMI) and corresponding centiles were calculated for school-age children using the online World Health Organization (WHO) AnthroPlus software that is commonly used to monitor the growth of school-age children and adolescents. BMI results and centiles were also calculated and plotted manually to ensure validity of results. The WHO's BMI cut-offs were used. Key values used for minors assessed were overweight (between 85th and 95th percentiles), obese (>95th percentile), the sum of the two (overweight and obese), and underweight (less than the 5th percentile).



In children under six, a screening developmental assessment was carried out using a checklist, and this was combined with clinical observations. The main areas of development were assessed; namely, gross motor skills, fine motor and eye-hand co-ordination, communication, and hearing, as well as social skills. The Strength and Difficulty Questionnaire (SDQ) was filled in by caregivers of all minors aged four and over to screen for behavioural and emotional difficulties of the looked after children and young people (Goodman, 1997). This tool aided in corroborating the clinical assessment in cases of known or newly identified emotional, behavioural, and mental health difficulties.

Relevant data were collected by the LACHS as part of a prospective audit, including health information that was known through the measures detailed above and newly identified information as per clinical assessment. A standardised proforma was used to code data obtained, including demographic information, care information (including risk factors exposed to), and medical information (including health conditions which were known and those which were newly identified after the assessment). The coded data were inputted onto a Microsoft Excel sheet and analysed using SPSS software. For every assessment the coded data were discussed amongst the three members of the team to minimise errors and ensure standardisation. Tight data validation techniques were used to decrease errors in data input, but the possibility of errors in data entry could not be excluded. During data collation, data were checked for errors and corrected where possible, or excluded and marked as absent if this proved difficult to correct.

Medical reports on each minor reviewed were prepared by the LACHS and shared with the professionals involved in the minor's care, including caregivers and looked after children and young people key workers, who included the identified health recommendations in the minor's care plan. The LACHS ensured that health issues identified were followed up on by caregivers and key workers.

Results

The total population of minors living in residential care, as reviewed by the LACHS, amounted to two hundred minors. These minors resided in twenty-five residential/community homes around the island which are run by various entities including non-governmental organisations as well as the FSWS. Fifty-three per cent (n=107) were male whilst 47 per cent (n=93) were female, with age groups depicted in Figure 1. Seventy-five per cent (n=151) were under a protection order, whilst 25 per cent (n=49) were voluntarily in care. All minors were exposed to one or more risk factors in the family before entering care: 74 per cent (n=148) to poor parenting, around 40 per cent to domestic violence, parental mental health issues and/or parental substance misuse (Figure 2). Ninety per cent (n=180) of minors had been exposed to specific forms of child maltreatment, with 49 per cent (n=89) being exposed to one type of abuse and



51% per cent (n=91) to more than one type of maltreatment (19 per cent [n=34] to two types, 20 per cent [n=36] to three types and 12 per cent [n=21] to four types or more). The majority were exposed to neglect, at 75 per cent (n=150), followed by domestic violence at 35 per cent (n=70), physical abuse (29%, n=58), emotional abuse (27%, n=54) and sexual abuse (13% n=25) (Figure 3).

Physical health and health-related behaviours of looked after children and young people

Thirty-one per cent (n=61) of looked after children and young people in residential care were found to have incomplete immunisation records for state provided vaccines. The commonest outstanding vaccines were those against human papilloma virus (HPV) and measles, mumps and rubella (MMR) at 12 per cent (n=23). For females over 12 years, this amounted to 24 per cent (n=23) being unvaccinated against HPV. A further 96 per cent (n=190) were not immunised against meningococcal disease (meningococcal types B and/or ACWY), which was only available privately for those minors born prior to 2020. Eighty-seven per cent (n=172) were not immunised against Varicella which was not part of the national schedule and only available privately.

Ninety-four per cent (n=188) of all children were found to have at least one physical health problem (excluding weight related issues which were assessed separately): 67 per cent (n=134) had a diagnosis that was previously already known and 76 per cent (n=151) had a newly identified health issue after the initial health assessment. Minors may have had more than one physical health problem.

The commonest identified physical health problem was related to dental care, at 60 per cent (n=120). Thirty-six per cent (n=72) were found to have visible dental caries that required an ongoing referral and 24 per cent (n=48) had other dental problems, including needing braces. Sixty per cent (n=118) of minors had not been screened by a dentist over the previous year, of whom 73 per cent (n=51) were found to require an ongoing dental referral by the LACHS.

Ophthalmic related issues amounted to 54 per cent (n=107) of physical health issues, with 45 per cent (n=90) relating to visual acuity problems, seven per cent (n=13) to squints, and the remaining two per cent (n=4) to other eye related problems like nystagmus. Twenty-seven per cent (n=18) of minors with known visual acuity problems had not been followed up with a visual acuity screen over the previous year.

Forty-two per cent (n=83) of minors had dermatological findings which mainly included very dry skin needing emollients and/or active eczema. Twenty-seven per cent (n=53) of minors had ENT related issues ranging from glue ear to enlarged adenoids that required nasal steroids. Seventeen per cent (n=33) had gastrointestinal related issues, mainly constipation at eight per cent (n=16).



Sixteen per cent (n=32) had musculoskeletal related problems including flat feet. Table 1 indicates the physical health problems identified in looked after children and young people.

Body mass index was analysed separately to the other physical health problems, whereby 44 per cent (n=72) of minors over five years of age had a BMI within the overweight/obese range.

Health related behaviours

With regard to health-related behaviours, 20 per cent (n=20) of youths aged 12 to 18 admitted to smoking tobacco. A higher prevalence, at 36 per cent (n=17), was found for the female teen population in residential care when compared to the male teen population, which stood at six per cent (n=3). Nine per cent of these youths experimented with alcohol whilst five per cent were making use of illicit substances.

Development

With regards to child development, 59 per cent (n=20) of children under six were found to have at least one developmental problem, the majority relating to communication (50% [n=17]). The rest of the developmental problems are outlined in Table 2. Minors may have had more than one developmental health problem.

Mental health

Sixty per cent (n=119) of children residing in residential care had a least one mental health problem (some may have had more than one): 45 per cent (n=89) with a diagnosis that was previously already known and 35 per cent (n=69) who had a newly identified mental health issue after the initial health assessment. Around one fifth exhibited symptoms relating to emotional dysregulation (21%, n=42), attention deficit hyperactivity disorder (ADHD) (20%, n=40), attachment difficulties (19%, n=37), and other behavioural problems including conduct disorders (18%, n=36). Thirteen per cent (n=26) experienced sleep disturbances, 12 per cent (n=24) experienced anxiety, 10 per cent (n=20) had an intellectual/learning disability, seven per cent (n=13) were on the autistic spectrum, four per cent (n=8) had an identifiable mood disorder, three per cent (n=6) had clinical depression, whilst six per cent (n=12) had another identifiable mental health issue such as post-traumatic stress disorder. Twenty-six per cent (n=52) of minors had regular follow ups at the local children and young people service for mental health (CYPS). Table 3 refers to the mental health problems identified in looked after children and young people. Minors may have had more than one mental health problem.

Forty-five per cent (n=73) of minors had high/very high total SDQ scores, as reported by the main caregiver. Sixty-three per cent (n=64) of those with an



identifiable mental health issue had a high/very high total score compared to 13 per cent (n=8) who had none identified.

Education

Thirty-seven per cent (n=63) of minors attending school were formally statemented, meaning that an in-depth educational psychological assessment was carried out, identifying special educational needs and the need for assistance from a learning support educator in class. Forty-six per cent (n=88) had diagnosed learning difficulties that included difficulties such as dyslexia that did not qualify for a formal statementing of needs.

Discussion

The majority of minors residing in residential care in Malta were exposed to a number of risk factors prior to entering care, including child maltreatment, which amount to major ACEs. Neglect was the commonest reason for looked after children and young people to become looked after, at 75 per cent, corroborating international evidence (NICE, 2021; Steele & Buchi, 2008). The exposure to toxic stress hormones resulting from ACEs is known to negatively affect the developing brain, particularly areas within the limbic system involved in memory formation/retrieval and emotional regulation, as well as the pre-frontal cortex, which is important in executive functioning, including complex problem solving, attention and behaviour. The findings of this study need to be interpreted in the light of this, as well as the fact that the study coincided with the easing of Covid-19 related restrictions.

Physical health

This study supports previous data that reported the increased risk of physical health problems in looked after children. Dental related problems, obesity and vision problems were the commonest physical health problems observed in this population study, which is consistent with other studies (Hadfield & Preece, 2008; Martin et al., 2014; Meltzer et al., 2003; Rodrigues, 2004; Sempik et al., 2008; Steele & Buchi, 2008). There was a higher prevalence of dermatological conditions (42%; n=83) when compared to other studies, which reported a lower range of between three and eight per cent. This finding challenges the 'hygiene hypothesis' which postulates that more frequent exposure to infections in young children likely reduces the rate of atopy (Meltzer et al., 2003; Rodrigues, 2004; Steele & Buchi, 2008).

Dental care

The high incidence of dental issues in this study are partly a result of background neglect, but also the lack of free national dental screening available in Malta, resulting in caregivers asking for dental appointments only when minors are symptomatic. Evidence from other countries such as the UK has also



shown that minors in care have relatively higher rates of dental problems including oral health neglect (Waddell, 2007; Williams et al., 2014). A population data linkage study in Scotland further confirmed how looked after minors had low levels of access to preventive dental services, reporting high levels of significant dental decay extraction, even when accounting for sociodemographic reasons (McMahon et al., 2017). The high incidence of dental issues and lack of regular screening found in this study reiterates the importance of having more easily accessible pathways for this vulnerable group. During this study, a memorandum of understanding was signed by the local FSWS and the Faculty of Dental Surgery within the University of Malta, where all children in out of home care are now screened and offered free dental interventions.

Weight related issues

Malta already has one of the highest rates of overweight and obese children worldwide at 40 per cent (Grech et al., 2017). The results of this population study report higher levels of overweight and obese children residing in residential care in Malta (44%), which is the highest prevalence rate documented for this population group in the available published literature. Systematic reviews of population-based studies evidence possible mechanisms that link ACEs to adult obesity, including responses related to social disruption, changes in health behaviours, and chronic stress that triggers immunometabolic and neuroendocrine pathways (Felitti et al., 1998; Wiss & Brewerton, 2020). Furthermore, minors experiencing certain mental health problems such as depression may be inclined towards comfort eating as a form of reward, and lack of exercise due to anhedonia. Minors taking certain psychiatric medication, such as risperidone, may also experience increased appetite, which further contributes to this problem.

Tackling obesity requires a robust multidisciplinary approach targeting risk factors present at various levels. In residential care, implementing healthy eating policies and promoting daily exercise is essential, yet challenging. In fact, the majority of minors assessed had been residing in alternative care for a significant period of time, suggesting that this environment was not protecting them against weight related issues. Residential home managers must understand the health risks relating to obesity and promote change by engaging caregivers and children alike. This includes budgeting for healthier fresh food items that may be more expensive than processed food. In Malta, many homes receive food donations from third parties and home managers need to ensure that these types of food are healthy before accepting them. The biological family who meet their children during supervised access visits also need to be informed and educated, with unhealthy food items prohibited during such visits. As an initiative to help tackle this issue, the LACHS has collaborated with the Department for Health Regulation within the Health Promotion and Disease Prevention Directorate to work with individual homes, assessing their menus and



trying to offer healthier affordable options. Workshops were also organised with minors in residential care to engage them in lifestyle changes.

Vaccinations and lifestyle issues

With regards to immunisation records, the number of minors who had outstanding immunisations (31%, n=61) was concerningly high, especially considering that the national rate of vaccine uptake in children in Malta is between 90 and 98 per cent (WHO, 2021). This is concerning, especially when most of these minors had already been residing in residential care prior to the date of this study. Furthermore, the implication of this finding is that looked after children and young people were at an increased risk of preventable diseases as well as an increased risk for larger outbreaks within such settings. The high prevalence of outstanding vaccines can be partly explained by the fact that certain residential homes had gone into lockdown over the preceding months due to the Covid-19 pandemic. Other reasons described by youths included them finding it difficult to approach general primary healthcare services. In other instances, the care home management were unaware of outstanding vaccines, which is concerning as most of these minors were under a protective care order, implying that their health needs should be safeguarded by the care home.

Up to the date of the study, minors in residential homes in Malta were not entitled to free meningococcal and varicella vaccines from the national health service. The cost effectiveness of such vaccines in preventing communicable diseases and possibly outbreaks with more serious repercussions should be a good enough reason to have these vulnerable group of minors vaccinated. Since the completion of this study, some residential homes in Malta found private funding for meningococcal vaccines which the LACHS helped in administrating.

In this study, collaborating with the local Primary Child and Youth Health and Immunisation Unit within the primary healthcare division allowed the LACHS to administer immunisations to minors at their care home. This approach helped to better engage these minors, through understanding why they found it difficult to attend health clinics. In fact, female youths who had outstanding HPV vaccines were all updated by the end of this study. This intervention will likely help in improving future health outcomes, by decreasing the risk of HPV infection, especially since this cohort are known to have a greater chance of engaging in sexual risk-taking behaviour (Ahrens et al., 2010; Carpenter et al., 2001). Furthermore, since the completion of this study LACHS has collaborated with the obstetrics and gynaecology department as well as the genito-urinary clinic who facilitated easily accessible screening for sexually transmitted infections as well as free contraception.

The rates of smoking, alcohol and illicit substance misuse in young people residing in residential care in Malta were less than those documented elsewhere



in the literature (Meltzer et al., 2003; Williams et al., 2001), however, these might have been underreported.

Mental health

The high rate of mental health disorders found in this study (60%), corroborates international data of increased rates of mental health problems in looked after children and young people. A wide variation in such rates is reported in the literature (25-72%), likely due to the heterogeneity of the studies available. Most studies seem to focus on foster care, however Ford et al. (2007) carried out a robust study analysing data from a large random sample of looked after children and young people in the UK. In minors aged five to 15 years living in residential care they found a rate of 71 per cent having at least one mental health issue, which was much higher than their national rate of ten per cent in aged-matched peers. The high rate of abnormal SDQ scores found in this study provided further evidence that these minors are at higher risk of mental illness. The abnormal SDQ scores in looked after children and young people, at 45 per cent, were higher than those found in the literature, where Marquis & Flynn, for example, found that 32 per cent of a sample of looked after children and young people had abnormal SDQ scores when compared to ten per cent of the general population. This supports the use of the SDQ as a standardised screening tool for looked after children and young people in helping to detect possible mental health concerns at an earlier stage (Marquis & Flynn, 2009). The high rates of mental health problems further reiterate the importance of having easily accessible mental health services for children and young people.

Data from this study shows that a significant number of children below five years were still residing in residential care in Malta. Since the completion of the study, the prevalence rate has decreased drastically, especially for those below three, who may be temporarily placed in a small residential setting awaiting a foster placement. Evidence shows that even in good high quality residential care, young children may still be at risk of a negative impact on their attachment and socio-behavioural development. Hence countries require stronger changes at policy level and better recruitment incentives for foster carers to ensure that children under the age of five are not placed in residential settings, in keeping with international recommendations (United Nations General Assembly, 2007).

Education

Looked after children and young people in Malta are nearly five times as likely to be statemented when compared to age matched peers, given that the national rate of minors in school who are formally statemented is eight per cent. This reflects a much higher prevalence rate of learning difficulties in this minority group, similar to other countries, such as the UK, where around 56 per cent of looked after children and young people had a special educational need when compared to 15 per cent of age matched peers (NICE, 2021). This reiterates the



importance of ensuring that schools have behavioural management policies that reflect trauma-informed practices in order to improve educational outcomes. This includes practices that have been established in other countries, such as the designated teacher role for looked after children and young people who can advocate for minors' educational progress (NICE, 2021).

Trauma-informed practices

In view of the exposure to ACEs and the significant health findings reported in this study, particularly the high prevalence of emotional dysregulation, attachment difficulties and behavioural and learning problems, looked after children and young people need to be placed in therapeutic settings that provide safe, stable, stimulating, and nurturing environments. These environments provide settings that promote positive childhood experiences that counteract ACEs; environments where new skills, practices and positive relationships are made, and where caregivers recognise and understand the effects of trauma and work to avoid re-traumatisation. This requires services and professionals working with such minors to be trained in trauma-informed care, moving away from focussing on what is wrong with the minor who may appear to have an unwanted type of behaviour and instead empathically questioning what happened to the minor that is leading towards such behaviour (Sweeney et al., 2018). It is through understanding how these minors have been affected by their experience of trauma that professionals can adapt their practices in ways that better engage looked after children and young people, helping them feel understood, validated, and worthy, aiming towards boosting resilience, making more secure attachments and overcoming future adverse outcomes (Holden & Sellers, 2019).

Strengths

The strengths of this study include data drawn from the total population of minors in residential care in Malta with a one hundred per cent response rate. Furthermore, no measures were needed to address the effects of missing data, as data was complete. All data was collected by the same team which minimised bias.

Limitations and future studies

The information relating to the minors' social background, including risk factors and type of abuse they were exposed to, was dependent on what the lead key worker included in the standardised referral form. Although the total population of looked after children and young people residing in residential care was assessed, the numbers were still relatively small. It is difficult to ascertain whether the effects of Covid-19 directly contributed to certain health issues described in this study or whether they were mainly related to exposure to ACEs. Future studies could usefully consider the views of looked after children and



young people themselves when it comes to their healthcare and the type of health service provision they would like to have.

Conclusion

This population study of looked after children and young people in residential care provides further evidence as to the negative impact ACEs have on the physical, developmental, and mental health of such minors. This valuable information emphasises the need for policy changes and strong governmental commitments that ensure funding for therapeutic care settings, including training in trauma-informed care for all professionals and caregivers working with vulnerable minors, focussing on promoting resilience. The health needs identified also highlight the importance of investing in preventative work, including earlier intervention and better support for high-risk families, especially where ACEs have been identified. This may limit the health needs of these minors prior to entering alternative care and also be more cost effective in the long-term. This study highlights the fact that investing in specialised healthcare services for looked after children and young people is one way of improving health outcomes through earlier detection of health-related conditions that may otherwise be overlooked by universal services who cannot offer regular holistic assessments. Furthermore, having such services helps in creating pathways and collaborations with other entities involved in the minor's care. Incorporating health issues in the minor's care plan also ensures that outstanding health concerns are documented and more easily followed through. This study also reiterates the importance of countries adopting better structures to collate standardised health information about their population of looked after children and young people, in order to have stronger evidence to improve their local practice and policies relating to looked after children and young people. This study also sheds light on the impact of the Covid-19 pandemic in the health of minors residing in residential care.

References

- Ahrens, K. R., Richardson, L. P., Courtney, M. E., McCarty, C., Simoni, J., & Katon, W. (2010). Laboratory-diagnosed sexually transmitted infections in former foster youth compared with peers. *Pediatrics*, *126*(1), e97-e103. <https://doi.org/10.1542/peds.2009-2424>
- Allik, M., Brown, D., Gedeon, E., Leyland, A. H., & Henderson, M. (2022). *Children's Health in Care in Scotland (CHiCS): Main findings from population-wide research* [Project report]. University of Glasgow. <http://doi.org/10.36399/gla.pubs.279347>
- Burge, P. (2007). Prevalence of mental disorders and associated service variables among Ontario children who are permanent wards. *Canadian Journal of Psychiatry*, *52*(5), 305-314. <https://doi.org/10.1177/070674370705200505>



Carpenter, S. C., Clyman, R. B., Davidson, A. J., & Steiner, J. F. (2001). The association of foster care or kinship care with adolescent sexual behavior and first pregnancy. *Pediatrics*, *108*(3), E46. <https://doi.org/10.1542/peds.108.3.e46>

Department of Health, & Department of Education (2015). *Promoting the health and wellbeing of looked after children*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1100188/Promoting_the_health_and_well-being_of_looked-after_children_August_2022_update.pdf

Erol, N., Simsek, Z., & Münir, K. (2010). Mental health of adolescents reared in institutional care in Turkey: Challenges and hope in the twenty-first century. *European Child & Adolescent Psychiatry*, *19*(2), 113-124. <https://doi.org/10.1007/s00787-009-0047-2>

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, *14*(4), 245-258. [https://doi.org/10.1016/s0749-3797\(98\)00017-8](https://doi.org/10.1016/s0749-3797(98)00017-8)

Ford, T., Vostanis, P., Meltzer, H., & Goodman, R. (2007). Psychiatric disorder among British children looked after by local authorities: Comparison with children living in private households. *The British Journal of Psychiatry: The Journal of Mental Science*, *190*, 319-325. <https://doi.org/10.1192/bjp.bp.106.025023>

Garcia, A., & Courtney, M. (2011). Prevalence and predictors of service utilization among racially and ethnically diverse adolescents in foster care diagnosed with mental health and substance abuse disorders. *Journal of Public Child Welfare*, *5*(5), 521-545. <https://doi.org/10.1080/15548732.2011.617277>

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *38*(5), 581-586. <https://doi.org/10.1111/j.1469-7610.1997.tb01545.x>

Grech, V., Aquilina, S., Camilleri, E., Spiteri, K., Busuttil, M., Sant'Angelo, V. F., & Calleja, N. (2017). The Malta Childhood National Body Mass Index Study: A population study. *Journal of Pediatric Gastroenterology and Nutrition*, *65*(3), 327-331. <https://doi.org/10.1097/MPG.0000000000001430>

Hadfield, S. C., & Preece, P. M. (2008). Obesity in looked after children: Is foster care protective from the dangers of obesity? *Child: Care, Health and Development*, *34*(6), 710-712. <https://doi.org/10.1111/j.1365-2214.2008.00874.x>

Holden, M. J., & Sellers, D. (2019). An evidence-based program model for facilitating therapeutic responses to pain-based behavior in residential care.



International Journal of Child, Youth and Family Studies, 10(2-3), 63-80.

<https://doi.org/10.18357/ijcyfs102-3201918853>

Hughes, K., Ford, K., Bellis, M. A., Glendinning, F., Harrison, E., & Passmore, J. (2021). Health and financial costs of adverse childhood experiences in 28 European countries: A systematic review and meta-analysis. *The Lancet Public Health*, 6(11), e848-e857.

Marquis, R. A., & Flynn, R. J. (2009). The SDQ as a mental health measurement tool in a Canadian sample of looked-after young people. *Vulnerable Children and Youth Studies*, 4(2), 114-121. <https://doi.org/10.1080/17450120902887392>

Martin, A., Ford, T., Goodman, R., Meltzer, H., & Logan, S. (2014). Physical illness in looked-after children: A cross-sectional study. *Archives of Diseases in Childhood*, 99(2), 103-107. <https://doi.org/10.1136/archdischild-2013-303993>

McMahon, A. D., Elliott, L., Macpherson, L. M., Sharpe, K. H., Connelly, G., Milligan, I., Wilson, P., Clark, D., King, A., Wood, R. & Conway, D. I. (2018). Inequalities in the dental health needs and access to dental services among looked after children in Scotland: a population data linkage study. *Archives of Disease in Childhood*, 103(1), 39-43.

Meltzer, H., Gatward, R., Corbin, T., Goodman, R., & Ford, T. (2003). *The mental health of young people looked after by local authorities in England*. London: The Stationery Office.

Milburn, N. L., Lynch, M., & Jackson, J. (2008). Early identification of mental health needs for children in care: A therapeutic assessment programme for statutory clients of child protection. *Clinical Child Psychology and Psychiatry*, 13(1), 31-47.

Minor Protection (Alternative Care) (Malta) Act 2019, c. 602.

National Institute for Health and Care Excellence (2021). *Looked-after children and young people [NICE Guideline No. 205]*.

<https://www.nice.org.uk/guidance/ng205/resources/lookedafter-children-and-young-people-pdf-66143716414405>

Oswald, S. H., Heil, K., & Goldbeck, L. (2010). History of maltreatment and mental health problems in foster children: A review of the literature. *Journal of Pediatric Psychology*, 35(5), 462-472.

Rodrigues, V. C. (2004). Health of children looked after by the local authorities. *Public Health*, 118(5), 370-376.

Sawyer, M. G., Carbone, J. A., Searle, A. K., & Robinson, P. (2007). The mental health and wellbeing of children and adolescents in home-based foster care. *Medical Journal of Australia*, 186(4), 181-184.



Sempik, J., Ward, H., & Darker, I. (2008). Emotional and behavioural difficulties of children and young people at entry into care. *Clinical Child Psychology and Psychiatry*, 13(2), 221-233.

Social Care Standards Authority (2020). *Guidelines Social Regulatory Standards - Office Based Services for Children in Alternative Care*.

<https://scsa.gov.mt/en/Documents/Publications/Children%20in%20Alternative%20Care/Children%20Care%20ENG%20Office%20Services.pdf>

Ståhlberg, O., Anckarsäter, H., & Nilsson, T. (2010). Mental health problems in youths committed to juvenile institutions: Prevalences and treatment needs. *European Child & Adolescent Psychiatry*, 19, 893-903.

Steele, J. S., & Buchi, K. F. (2008). Medical and mental health of children entering the Utah foster care system. *Pediatrics*, 122(3), e703-e709.

Sweeney, A., Filson, B., Kennedy, A., Collinson, L., & Gillard, S. (2018). A paradigm shift: Relationships in trauma-informed mental health services. *British Journal of Psychiatry Advances*, 24(5), 319-333.

United Nations General Assembly November (2007). Agenda item 66 (a) Promotion and protection of the rights of children. Sixty-second session: Third Committee.

Waddell, B. (2007). *The dental health of looked after and accommodated children and young people in Scotland—a literature review*. Glasgow: University of Glasgow.

Walton, S., & Bedford, H. (2017). Immunization of looked-after children and young people: A review of the literature. *Child: Care, Health and Development*, 43(4), 463-480.

Williams, A., Mackintosh, J., Bateman, B., Holland, S., Rushworth, A., Brooks, A., & Geddes, J. (2014). The development of a designated dental pathway for looked after children. *British Dental Journal*, 216(3), E6.

Williams, J., Jackson, S., Maddocks, A., Cheung, W. Y., Love, A., & Hutchings, H. (2001). Case-control study of the health of those looked after by local authorities. *Archives of Disease in Childhood*, 85(4), 280-285.

Wiss, D. A., & Brewerton, T. D. (2020). Adverse childhood experiences and adult obesity: A systematic review of plausible mechanisms and meta-analysis of cross-sectional studies. *Physiology & Behavior*, 223, 112964.

World Health Organization (n.d.-a). *WHO Immunization Dashboard Malta portal*. <https://immunizationdata.who.int/pages/profiles/mlt.html>. Retrieved January 2, 2023, from <https://immunizationdata.who.int/pages/profiles/mlt.html>



World Health Organization (n.d.-b). *Growth reference - BMI-for-age (5-19 years)*. Retrieved January 3, 2023, from <https://www.who.int/toolkits/growth-reference-data-for-5to19-years/indicators/bmi-for-age>

Acknowledgements

Heartfelt thanks go to Ms Remenda Grech, director of the Directorate for Alternative Care (Children and Youth Malta), Mr Alfred Grixti, chief executive officer of the Foundation for Social Welfare Services in Malta as well as the Honourable Minister for social policy and children's rights, Dr Michael Falzon, for supporting our vision of improving the health outcomes of looked after children and young people in Malta. Special thanks also goes to collaborating entities within health, namely the Faculty of Dental Surgery within the University of Malta, the mental health professionals within Child and Young People's Services (CYPS), the primary child, youth health and immunisation unit within the primary health care division, the Department for Health regulation within the Health Promotion and Disease Prevention Directorate, the Obstetrics and Gynaecological department, and the Genito-Urinary clinic, and the Paediatrics Department within Mater Dei Hospital in particular Dr Mariella Mangion, designated doctor for child protection. Sincere gratitude goes out to all the looked after children and child protection professionals as well as their dedicated caregivers, leaders, and managers who we have met in the various residential homes around the Maltese Islands. Finally, a special thank you to all the resilient looked after children and young people who participated in this study and who make our daily work worthwhile.

Declarations

Ethics approval for the study was obtained from the Malta University Research Ethics Committee application ID: SWB-2022-00249 (19th May 2022).

No grants or funding were obtained to carry out this study. Percentage totals may not add up due to rounding.

About the authors

Dr Kevin Borg M.D. (Melit.), MRCPCH (UK), MSc Child Health (UK), consultant community paediatrician, Directorate for Alternative Care (Children and Youth), Foundation for Social Welfare Services, Malta. Email: kevin-joseph.borg@gov.mt (corresponding author)

Kevin is a consultant community paediatrician with a special interest in safeguarding children, as awarded by the Royal College of Paediatrics and Child health. He successfully completed subspecialist training under the supervision of leading experts in London and Malta. Kevin also graduated from Warwick University after reading a master's degree in child health. He has published



material relating to this field. Kevin currently leads the Looked after Children Healthcare Service in Malta that was established in 2021. This service offers holistic health assessments of minors residing in both residential care and foster care.

Mr Daniel Camilleri H.Dip.(Melit.) B.Sc. (Hons)(Melit.), nurse, Directorate Alternative Care (Children and Youth), Foundation for Social Welfare Services, Malta. Email: daniel.camilleri.1@gov.mt

Ms Janice Mifsud B.Sc. (Hons)(Melit.), M.Ger.(Melit.), nurse, Directorate Alternative Care (Children and Youth), Foundation for Social Welfare Services, Malta. Email: janice.mifsud@gov.mt

Ms Tania Borg B.Sc. (Hons) (Melit.) M.Sc Statistics (Melit.), principal statistician, National Statistics Office, Malta. Email: tania.borg@gov.mt

Appendices

Table 1: Physical health problems identified in looked after children and young people

Medical Problems	Already Known		Newly Identified		Combined point prevalence	
	Number of Children (Total Count)	Percentage (%)	Number of Children (Total Count)	Percentage (%)	Number of Children (Total Count)	Percentage (%)
Dental Caries	8	4	64	32	72	36
Dental other	39	19,5	9	4,5	48	24
Ophthalmic: Visual acuity	70	35	20	10	90	45
Ophthalmic: Squint	8	4	5	2,5	13	6,5
Ophthalmic: others	4	2	0	0	4	2
Dermatological	17	8,5	66	33	83	41,5
ENT	14	7	39	19,5	53	26,5
Gastrointestinal: Constipation	7	3,5	9	4,5	16	8
Gastrointestinal: other	14	7	3	1,5	17	8,5
Musculoskeletal	20	10	12	6	32	16
Allergies	13	6,5	4	2	17	8,5
Infectious disease/ Need for infectious screen	1	0,5	16	8	17	8,5
Neurological	12	6	3	1,5	15	7,5
Urogenital/Renal	12	6	3	1,5	15	7,5
Respiratory	13	6,5	0	0	13	6,5
Genetic conditions/syndromes	8	4	2	1	10	5
Endocrine related (including Diabetes)	5	2,5	2	1	7	3,5
Cardiac	5	2,5	1	0,5	6	3
Gynaecological	2	1	2	1	4	2
Oncological	2	1	0	0	2	1
Other	5	2,5	11	5,5	16	8



Table 2: Developmental problems identified in looked after children aged under six years of age

Medical Problems	Already Known		Newly Identified		Combined point prevalence	
	Number of Children (Total Count)	Percentage (%)	Number of Children (Total Count)	Percentage (%)	Number of Children (Total Count)	Percentage (%)
<i>Developmental Problems (0 – 5 years old)</i>						
Communication problem: Articulation difficulty	2	5,9	8	23,5	10	29,4
Communication problem: Speech delay	5	14,7	2	5,9	7	20,6
Fine motor delay including dyspraxia	1	2,9	1	2,9	2	5,9
Global development delay	2	5,9	0	0	2	5,9
Development other	0	0	1	2,9	1	2,9
Gross motor delay	0	0	0	0	0	0

Table 3: Mental health problems identified in looked after children and young people

Medical Problems	Already Known		Newly Identified		Combined point prevalence	
	Number of Children (Total Count)	Percentage (%)	Number of Children (Total Count)	Percentage (%)	Number of Children (Total Count)	Percentage (%)
<i>Mental Health Problems</i>						
Emotional dysregulation	31	15,5	11	5,5	42	21
ADHD	33	16,5	7	3,5	40	20
Attachment disorder	8	4	29	14,5	37	18,5
Behavioral problems	31	15,5	5	2,5	36	18
Sleep disturbances	15	7,5	11	5,5	26	13
Anxiety	9	4,5	15	7,5	24	12
Learning Disability	20	10	0	0	20	10
ASD	9	4,5	4	2	13	6,5
Mood disorder	8	4	0	0	8	4
Depression	5	2,5	1	0,5	6	3
Mental Health Other	10	5	2	1	12	6

Figure 1: Looked after children and young people residing in residential care according to age group



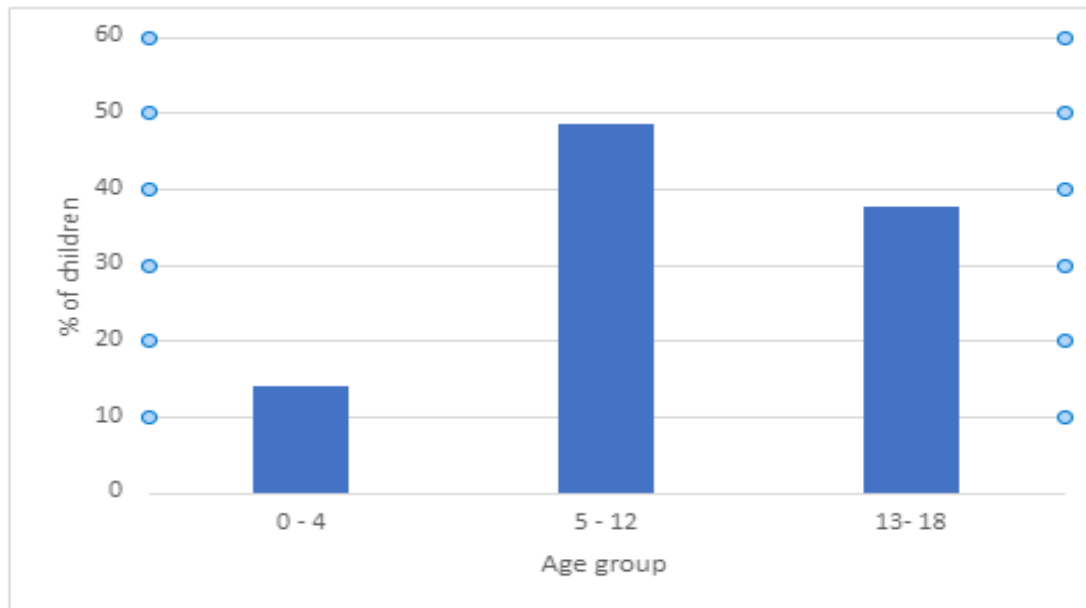


Figure 2: Risk factors that Looked after children and young people in residential care were exposed to before entering alternative care

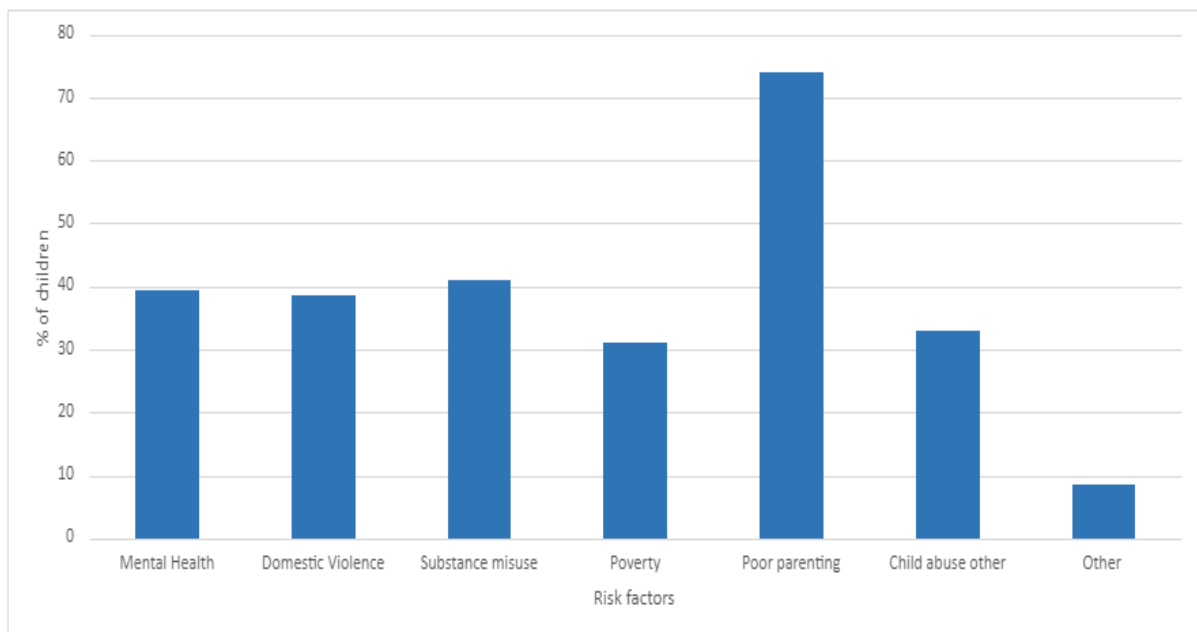


Figure 3: Type of child maltreatment that looked after children and young people in residential care were exposed to before entering alternative care



