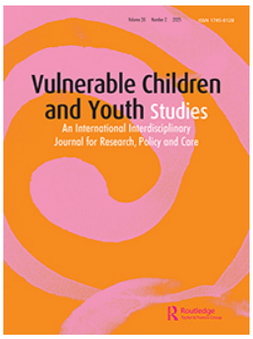

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Differences in wellbeing patterns among late adolescent boys and girls with and without experience of out-of-home care

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ABSTRACT

Wellbeing is a key aspect of a good life. A large and consistent body of research has shown that adolescents who are, or have at some point been placed in, out-of-home care are significantly more likely to experience a range of negative wellbeing indicators compared to their same-age non-placed peers. The aim of this cross-sectional study was to explore differences in wellbeing patterns among late adolescent boys and girls with ($n = 131$) and without ($n = 319$) experience of out-of-home care in Sweden. We used cluster analysis including 10 wellbeing indicators and identified two unique clusters of young people: (1) a group exhibiting comparatively elevated wellbeing and (2) a group exhibiting comparatively reduced wellbeing. Girls, adolescents with out-of-home care experience, and unemployed adolescents were more likely to be found in the reduced wellbeing cluster.

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Wellbeing; adolescence; out-of-home care; foster care; intervention development; person centered analysis

Introduction

This study explores differences in wellbeing between adolescents with and without experience of out-of-home care in Sweden. Wellbeing is a key aspect of a good life. Accordingly, promoting and ensuring wellbeing for all people at all ages is one of the 17 United Nations sustainable development goals (United Nations, 2020). Wellbeing is multi-faceted in nature and a clear definition of the concept that scholars agree and have reached consensus on is lacking (Gennings et al., 2021). In this study, we use an inclusive definition of wellbeing as 'the balance point between an individual's resource pool and the challenges faced' (Dodge et al., 2012, p. 230) and 'A broad category of phenomena that includes people's emotional responses, domain satisfactions, and global judgments of life satisfaction' (Diener et al., 1999, p. 309). Given that adolescence is a critical period in the development of wellbeing (Sawyer et al., 2018), conducting research on wellbeing during this developmental period is essential to understanding and fostering healthy outcomes throughout the lifespan.

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Despite the lack of a clear and unified definition of wellbeing, there appear to be two main conceptual approaches to the understanding of wellbeing. Objective approaches tend to conceptualize wellbeing in terms of indicators such as material resources (e.g. income) and other social indicators (e.g. education) without attention to individual perceptions or experiences (Boelhouwer & Noll, 2024). Subjective approaches, on the other hand, emphasize personal experiences and individual fulfillment, which include constructs such as life satisfaction, optimism, and a sense of personal growth (Martín-María et al., 2017; Steptoe et al., 2015). In their attempt to develop a definition and conceptual framework for adolescent wellbeing specifically, Ross et al. (2020) identified five interconnected domains for adolescent wellbeing. These include self-efficacy and competence, autonomy and resilience, social relatedness, personal hygiene and habits, and good health as indicators that 'adolescents have the support, confidence, and resources [they need in order] to thrive in contexts of secure and healthy relationships, realizing their full potential and rights' (p. 474). Given its focus on developmental resources, this framework may be especially salient for assessing wellbeing in adolescents with adverse life experiences due to the practice and policy interest in developing services that can target appropriate change mechanisms in specific vulnerable groups of adolescents.

The literature on thriving is closely related to the literature on wellbeing, but there are some important distinctions. While wellbeing is often conceptualized as a multidimensional state encompassing emotional, psychological, and social functioning, thriving is typically understood as a dynamic developmental process that reflects optimal functioning in the face of challenges or opportunities (Bundick et al., 2010). Thriving incorporates the idea of growth beyond baseline functioning and is strongly tied to indicators of flourishing, purpose, and prosocial engagement (Lerner et al., 2003). In contrast, wellbeing frameworks often encompass both subjective experiences (e.g. life satisfaction) and more static dimensions of health and functioning. Thriving also places stronger emphasis on the interaction between individual strengths and contextual resources over time. In this study, we focus on wellbeing as a broader, inclusive construct that captures both individual assets (e.g. competence and resilience) and relational supports (e.g. social support and relatedness) while recognizing that many of these elements also underpin thriving.

Whereas most youth live with their parents during childhood and adolescence, some are placed by the social services in out-of-home care (i.e. care settings where youth live outside of their own home, such as foster care, group homes, or institutional care) for reasons such as a harmful home environment and their own disruptive behavior. Research consistently shows that adolescents placed in out-of-home care transition to independent living with relative disadvantage across several outcome areas (Font & Palmer, 2024; Mendes & Chaffey, 2024; Sacker et al., 2021) when compared to their non-placed peers. These findings are consistent internationally. In Sweden, a relatively high (Gilbert et al., 2011) and increasing (Nordic Social Statistical Committee, 2015) number of youth are placed in out-of-home care. Currently, about 1 in 20 Swedish youth are placed in out-of-home care at some point during childhood and/or adolescence (Berlin, 2020), the majority of whom are placed in foster care (approx. 70%). The goal of all placements in out-of-home care in Sweden is to reunite young people with their parents. However, this is not always possible and regardless

of progress in terms of reunification, placement in out-of-home care for young people formally ends at the age of 18. However, this may be extended to the age of 19 in certain special cases such as when the young person is still engaged in upper secondary school or until the age of 21 if placed in compulsory, as opposed to voluntary, care. The length of time in care and age of entry can vary widely depending on case characteristics. In the U.S., there is federal policy regarding the provision of universal transition planning and skill building services to support the transition from out-of-home care to independent living. By comparison, in Sweden, there is no such legislation regarding the provision of transition services. This is in stark contrast to both the U.S. and other Nordic countries (Olsson et al., 2020). Increasing our understanding of wellbeing in transition aged young people in out-of-home care would aid in the development of appropriate transition services that target the specific areas of need that young people transitioning from care experience. Currently, there is a growing body of research that suggests that this is an area in need of development (Bergström et al., 2020; Greeson et al., 2020; Taylor et al., 2024).

Despite wide-spread policy and practice measures adopted by Sweden and other countries to meet the UN sustainable goal of wellbeing for all, a large and consistent body of research has shown that adolescents who are, or have at some point been, placed in out-of-home care are significantly more likely to experience a range of negative outcomes compared to their same-age non-placed peers, including low educational attainment (Forsman, 2020), poor somatic and mental health (Vinnerljung & Hjern, 2018), and higher levels of offending (Vinnerljung & Hjern, 2011). The negative outcomes associated with having experienced out-of-home care as a child or adolescent continue well into adulthood (Akister et al., 2010; Kääriälä & Hiilamo, 2017) and exist even after adjustments are made for preplacement factors and familial factors (Sariaslan et al., 2022). As a response to these findings, an important public health goal in many countries is to address the significant health and wellbeing inequalities between youth with and without experience of out-of-home care.

Most of the research on wellbeing among adolescents in out-of-home care has focused on objective measures of wellbeing broadly or mental health specifically (e.g. mental, behavioral, neurodevelopmental disorders; Bronsard et al., 2016; Dubois-Comtois et al., 2021; Ford et al., 2018). Importantly, wellbeing and mental health are independent dimensions. As such, it is possible for a young person to experience high levels of wellbeing while simultaneously having a diagnosed mental health challenge or, similarly, experience low levels of wellbeing absent any clear mental health diagnosis (Weich et al., 2011). One-off investigations of the subjective wellbeing of out-of-home care experienced young people do exist (e.g. Carvalho et al., 2021; Llosada-Gistau et al., 2017; Montserrat et al., 2022; Ortuzar et al., 2019; Schutz et al., 2015; Selwyn et al., 2016). Taken as a whole, these studies primarily investigate perceived life satisfaction and find that there may be certain specific differences in perceived life satisfaction by participant characteristics (e.g. sex and placement type) and that the impact of out-of-home care experience on perceived life satisfaction may be mitigated by other participant characteristics or experiences (e.g. perceived social support; Long et al., 2017). Across studies, investigators highlight the need for more research on the subjective wellbeing of young people placed in out-of-home care as a precursor to

the development of more targeted, tailored, and effective policy and interventions for this vulnerable group. As such, this literature can be strengthened through studies that attempt to increase our understanding of subjective wellbeing more broadly among both general population and vulnerable populations of young people and by using measures that more fully capture wellbeing as it manifests in adolescence specifically.

Research on the wellbeing of young people placed in out-of-home care highlights the heterogeneity of the population (Evans et al., 2024; Long et al., 2017). This means that there may be young people in out-of-home care who group together to form specific unique wellbeing profiles. The ways in which young people in out-of-home care group together to form specific subgroups of adolescents experiencing different constellations and levels of subjective wellbeing has not been investigated previously. Several studies in the literature on general adolescent populations have examined the clustering of young people with different wellbeing profiles. In line with our argument, these studies have found that various wellbeing indicators (e.g. health-related behaviors such as daily routines and substance use) cluster in adolescence (Busch et al., 2013; Whitaker et al., 2021). In this set of studies, most adolescents have been found to belong to the healthy or high wellbeing clusters (Whitaker et al., 2021). Jonsson et al. (2023) assessed clusters of wellbeing indicators in a general sample of early and mid-adolescent Swedish youth. They identified four clusters in sex-stratified analyses and three clusters using age-stratified analyses. Membership in the unhealthy clusters was predicted by socioeconomic disadvantage, having a migrant background, and living in reconstructed families or single-parent households. In another recent study, Stevely et al. (2024) identified four classes of adolescents based on a set of wellbeing indictors (e.g. perceived social support and life satisfaction) in a repeat cross-sectional study of youth from five European countries. In some of the countries, the proportion of youth in the unhealthy class had declined over time, from 2001/02 to 2013/14, but low family socioeconomic status still predicted membership in the unhealthy class. Even though these studies based on the general youth population suggest that a cluster approach provides meaningful findings in research on adolescent wellbeing, they cannot be extrapolated to the group of youth with out-of-home care experience. Given that adolescents with experience of out-of-home care are at a disproportionally high risk of several negative wellbeing outcomes, it is possible that they are more likely to be members of more unhealthy clusters compared to their peers without experience of out-of-home care.

Understanding how adolescents with and without experience of out-of-home care cluster based on various wellbeing indicators is essential for developing strategic and effective interventions (Sundell & Olsson, 2017) designed to reduce or eliminate differences in wellbeing among the two groups of adolescents. To the extent that wellbeing indicators cluster in meaningful ways, the relative disadvantage in all types of health-related outcomes (Forsman, 2020; Vinnerljung & Hjern, 2011, 2018) suggests that wellbeing indicators may cluster differently depending on adolescent characteristics including out-of-home care experience. To ensure that policy and interventions can effectively improve the wellbeing of youth in out-of-home care, there is an urgent need for research in the field using a cluster approach.

Study aim and research questions

The aim of this study was to help close the gaps of knowledge identified above by exploring differences in wellbeing patterns among late adolescent boys and girls with and without experience of out-of-home care in Sweden. The study was designed to answer three research questions:

- RQ1. To what extent do late adolescents with and without experience of out-of-home care differ on important wellbeing indicators?
- RQ2. To what extent can unique wellbeing clusters among late adolescents be identified?
- RQ3. What adolescent characteristics predict membership in unique wellbeing clusters?

Materials and methods

Study design

This is a cross-sectional study of adolescents aged 15 years and older ($n = 450$). We leverage two samples: one from the general population of adolescents ($n = 319$) and one from a population of adolescents with recent or current experience of out-of-home care placement ($n = 131$). Data collection was conducted in conjunction with an ongoing research program which aims to develop effective support services for adolescents transitioning from out-of-home care (Skoog et al., 2024). Ethical approval for this study was provided by the Swedish Ethical Review Authority (2021–00149, 2022–02556–01, 2023–00877–02).

Procedure

Data from a general population of Swedish adolescents was collected between December 2021 and May 2022. Invitation to participate in the study was sent in three waves via regular mail to 1500 randomly selected adolescents aged 16–21 years old. The invitation contained information about the study, compensation for participation, contact details for the responsible researcher, and a QR code for an electronic questionnaire. The questionnaire was housed on the Qualtrics Survey Platform (www.qualtrics.com). The post office returned 84 invitations. In addition, 10 respondents did not provide informed consent or had not answered a single question, and these were excluded. Further, 18 respondents answered the questionnaire twice. Here, the entry with the fewest answers or, the second entry if the two entries had the same number of answers, was excluded. One respondent was excluded because the answers were clearly not trustworthy. We excluded all participants who did not complete at least 80% of single items in at least one instrument ($n = 18$).

Data from the sample of adolescents with out-of-home care experience were collected as part of an ongoing quasi-experimental study of supportive transition interventions for adolescents approaching or in transition from out-of-home care to independent living between October 2022 and April 2024 (Skoog et al., 2024). Participants were recruited via 20 youth-serving organizations across Sweden, including non-governmental

organizations, private service providers, and municipal social services. Adolescents aged 15 years or older were informed about the study and asked about their interest in participating by representatives of the organizations with which they were in contact. At this point, adolescents were provided written and verbal information about the study. Adolescents who were interested in more information were then referred to the research team who contacted the adolescent for informed consent.

Participants

Participant characteristics can be found in Table 1. Participants were 58% female and 42% male with a mean age of 18.55 years (SD = 1.85). Most participants were born in

Table 1. Sample characteristics of youth (n = 450) in the out-of-home care experienced (n = 131) and general population (n = 319) groups

Variable	All Youth n (%)	Out-of-home care experienced Sample n (%)	General Sample n (%)	X^2 (p)
Sex				3.80 (.05)
Female	259 (58)	67 (51)	192 (61)	
Male	186 (42)	64 (49)	122 (39)	
Age (M, sd, t)	18.55 (1.85)	17.85 (1.70)	18.84 (1.83)	5.47 (.00)
Birthplace				32.16 (.00)
Sweden	348 (78)	78 (60)	270 (85)	
Not Sweden	101 (23)	52 (40)	49 (15)	
Swedish citizenship				36.25 (.00)
Yes	32 (7)	104 (81)	311 (98)	
No	415 (93)	24 (19)	8 (2)	
Primary language				25.62 (.00)
Swedish	353 (79)	83 (63)	270 (85)	
Other	96 (21)	48 (37)	48 (15)	
In school				35.02 (.00)
No	79 (18)	19 (15)	60 (19)	
Primary	15 (3)	10 (8)	5 (2)	
Upper secondary	258 (58)	78 (60)	180 (57)	
Tertiary	85 (19)	14 (11)	71 (22)	
Other	12 (3)	10 (8)	2 (1)	
Employment				9.36 (.00)
Yes	194 (43)	42 (32)	152 (48)	
No	255 (57)	89 (68)	166 (52)	
Living situation				290.79 (.00)
With parents, relatives	238 (53)	3 (2)	235 (74)	
Alone or with partner, friends	82 (18)	28 (21)	54 (17)	
Out-of-home care	103 (23)	95 (73)	8 (3)	
Other	27 (6)	5 (4)	22 (7)	
Wellbeing indicators				
Daily Routines	3.68 (.59)	3.61 (.61)	3.71 (.58)	Ns
Self-efficacy	2.94 (.56)	2.88 (.56)	2.97 (.56)	Ns
General health	15.29 (6.88)	15.06 (6.84)	15.39 (6.90)	Ns
Resilience	70.68 (14.64)	70.94 (13.65)	70.58 (15.05)	Ns
Help seeking	29.94 (9.51)	30.72(10.22)	29.61 (9.20)	Ns
Formal	7.91 (4.21)	9.20 (4.57)	7.36 (3.93)	−4.19 (.00)
Informal	17.10 (5.61)	16.07 (5.72)	17.54 (5.51)	2.46 (.01)
Autonomy	3.49 (.81)	3.41 (.79)	3.52 (.81)	Ns
Relatedness	3.65 (.87)	3.53 (.86)	3.69 (.87)	Ns
Competence	3.32 (.76)	3.30 (.69)	3.32 (.79)	Ns
Social support	14.49 (7.33)	11.42 (6.23)	15.81 (7.38)	5.83 (.00)
Social support satisfaction	5.37 (.75)	5.29 (.72)	5.41 (.76)	Ns

Note: M = mean, SD = standard deviation, t = standard t-test.

Sweden (78%) and were attending school (82%). Almost half (43%) of participants were employed either part- or full-time. Most participants (53%) were living with either a parent or relative, 18% lived on their own or with a partner or friend, and 23% were at the time of response, living in out-of-home care (including 3% of respondents from the general youth population).

Background and demographic variables

Background and demographic variables included respondents' sex (male, female), age, birthplace (Sweden, Other), respondents' citizenship, respondents' mother tongue, whether the respondent was in school and level, whether the respondent was employed, and the respondents' living situation.

Wellbeing indicators

We chose indicators in theoretical alignment iwth the adolescent wellbeing framework as described by Ross et al. (2020).

Daily routines. Daily routines were measured by a shortened instrument inspired by the Sustainability of Living Inventory (Hou et al., 2019) and adjusted to fit youths' everyday life. The 18 items are measured on a five-point sematic scale ('very unusual' to 'very common') and span Personal Hygiene, Eating Habits, Sleeping Habits, Household Chores, Physical Activities, and Social Activities. Missing values on single items on this scale was <1%. The total score is used in this study.

Self-efficacy. Self-efficacy reflects an optimistic self-belief that one can perform a novel or difficult task, or cope with adversity and is measured with the General Self-Efficacy Scale (GSE; Schwarzer & Jerusalem, 1995). Perceived self-efficacy eases goal setting, effort investment, robustness in the face of barriers and recovery from setbacks. The scale consists of 10 items rated on a four-point sematic scale ('not at all true' to 'exactly true'). A high score indicates high self-efficacy. The Swedish version was translated by Koskinen-Hagman et al. (1999) and validated. By Löve et al. (2012). Missing values on single items on this scale was 1–2% (Little's MCAR 53.34, $p > 0.05$).

General health. The general health questionnaire (GHQ-12) is a screening instrument that detects psychosomatic symptoms and conditions (Goldberg et al., 1997). The scale consists of 12 items phrased as statements about symptoms with four sematic response options on a four-point scale. Six of the items are positively phrased and six are negatively phrased but worded so there is no need to reverse scores. A high score indicates more psychosomatic symptoms. Missing values on single items for this scale was 2–2.4% (Little's MCAR 36.47, $p > 0.05$). The license to use the Swedish version for this study was granted on 1 December 2022 and 24 February 2023 by Mapi Reserach Trust (https://mapi-trust.org).

Resilience. The Resilience Scale (RS-14) was used to measure degree of individual resilience (Wagnild, 2016; Wagnild & Young, 1993). The scale consists of 14 items rated on a seven-point sematic scale ('disagree' to 'agree'). A high score indicates high resilience. Missing values on single items on this scale was 2.7–3.3 (Little's MCAR 164.99,

$p \leq 0.05$). The Swedish version was translated by Lundman et al. (2007). License to use the Swedish version of the RS-14 was granted by The Resilience Center (https://www.resiliencecenter.com) on 27 October 2021 and 8 May 2024.

Help-seeking behavior. The General Help Seeking Questionnaire (GHSQ) was used to assess intentions to seek help from different sources, including both formal and informal help source options (Wilson et al., 2005). The GHSQ uses a matrix format that can be modified according to purpose and needs to meet sample characteristics and study requirements. A high score indicates high intentions to seek help. Missing values on single items on this scale ranged from 4.9% to 6.2% (Little's MCAR 122.81, $p > 0.05$). This attrition was mainly due to total missingness as $n = 22$ respondents did not answer a single question on the GHSQ. This attrition was equal across groups (OHC $n = 4$, .9%; Gen pop $n = 18$, 4%, $X^2 = 1.65$, $p > .05$). The questionnaire was translated from English to Swedish using the consensus method (Douglas & Craig, 2007) for this study.

Autonomy, relatedness, competence. The Need Satisfaction and Functional Scale (NSFS-18) measures external motivation within three subscales: autonomy (the need that your own actions are self-initiated and self-regulated), social relatedness (the need in your own social environment to develop secure and satisfying connections), and competence (the need that one can perform necessary actions with efficiency; Longo et al., 2016). The scale consists of 18 items rated on a five-point sematic scale ('agree' to 'disagree'). A high score on each subscale indicates high autonomy, social relatedness, or competence. Each of the three subscales are used in this study.

Degree of social support. The Social Support Questionnaire (SSQ-6) maps the number of available others the respondent can turn to when in need (Sarason et al., 1987). The total score assesses the number of available others the respondent feels he or she can turn to in times of need in each of six situations. The total score is used in this study. A high score indicates more perceived available support.

Satisfaction with perceived social support. In addition, the SSQ-6 measures the extent to which the respondent is satisfied with their perceived support in each of six given situations. The total score is used in this study. A higher score indicates higher satisfaction with their perceived social support.

Statistical methods

SPSS version 29.02 was used for all statistical analyses. Participant characteristics are reported with descriptive statistics (e.g. percent and mean) depending on variable measurement characteristics. Differences between the group of participants in the general adolescent population sample and the out-of-home care experienced sample were tested with Chi^2 or the standard t-test depending on variable characteristics.

Cluster analysis was used to identify unique sub-groups of participants exhibiting varying levels of wellbeing and was completed in two steps. First, using standardized scores (i.e. z-scores) all 10 wellbeing indicators were used in a hierarchical cluster analysis using Ward's method (Ward, 1963) to identify the

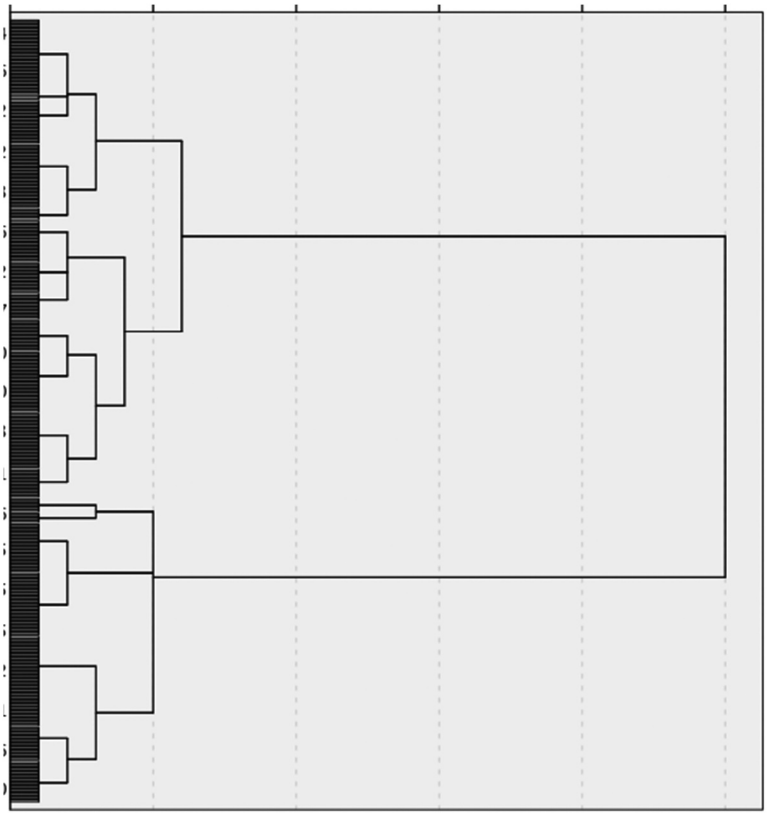

Figure 1. Dendrogram produced by hierarchical cluster analysis using Ward's method with Ten wellbeing indicators ($n = 370$) indicating the optimal two-cluster solution.

optimal number of wellbeing clusters based on data characteristics. A two-cluster solution was chosen based on the resulting dendrogram (Figure 1). Second, iterative partitioning (i.e. k-means clustering; Aldenderfer & Blashfield, 2011) with a two-cluster solution was used to create wellbeing clusters. The k-means cluster analysis arrived at the two-cluster solution in 11 iterations. Adolescent reported daily routines contributed significantly to the cluster solution at the $p \leq 0.01$ level and all other indicators made significant contributions at the $p \leq 0.001$ level.

Wellbeing based on cluster membership was then used as the dependent variable in further analyses testing differences between participant characteristics (e.g. experience of out-of-home placement) and wellbeing. Depending on variable characteristics, we used Chi^2 or the standard t-test in these analyses. We used logistic regression to investigate the predictive power of significant adolescent characteristics on membership in final well-being clusters.

Table 2. Final wellbeing cluster patterns ($n = 370$)

	Clusters	
Wellbeing Indicators	Cluster 1 Elevated wellbeing ($n = 229$)	Cluster 2 Reduced wellbeing ($n = 141$)
Daily routines	3.74 (.57)	3.59 (.61)
Self-efficacy	3.17 (.49)	2.62 (.50)
General Health	11.45 (4.39)	20.77 (5.81)
Resilience	78.29 (10.95)	60.73 (12.01)
Help-seeking	32.77 (9.39)	26.92 (7.79)
Autonomy	3.83 (.76)	2.98 (.62)
Relatedness	4.14 (.60)	3.01 (.75)
Competence	3.71 (.61)	2.72 (.55)
Social support	17.35 (7.02)	11.50 (5.92)
Social support satisfaction	5.62 (.47)	4.97 (.92)

Note: Daily routines significant at the $p \leq 0.01$ level. All other wellbeing indicators significant at the $p \leq .001$ level.

Results

Wellbeing indicators across participant groups

Although there were no statistical differences in general help-seeking intentions across groups, adolescents in the out-of-home care experienced group were significantly more likely to seek help from formal (e.g. social worker and crisis line) sources ($p < 0.001$) than adolescents in the general population group, while adolescents in the general population group were significantly more likely to seek help from informal (e.g. friends and relatives) sources ($p < 0.01$) compared to adolescents in the out-of-home care experienced group. Adolescents in the general population group reported significantly more ($p < 0.001$) sources of social support compared to adolescents in the out-of-home care experienced group. No other statistically significant differences were found between groups on individual wellbeing indicators (Table 1).

Distinct wellbeing clusters

Table 2 presents final wellbeing cluster patterns. Adolescents in Cluster 1 exhibited elevated wellbeing across all indicators relative to adolescents in Cluster 2. As such, adolescents in Cluster 2 exhibited reduced wellbeing across all indicators relative Cluster 1 adolescents. For six of the ten wellbeing indicators (self-efficacy, general health, resilience, autonomy, relatedness, competence) this difference was at least one full standard deviation below the mean relative adolescents in Cluster 1 (Supplementary Information 1, Figures 1–10).

Participant characteristics and membership in wellbeing clusters

Adolescents in the out-of-home care group, female participants, and unemployed adolescents were disproportionately often found in the reduced wellbeing cluster (Table 3). No other statistically significant differences were found between groups in adolescent background characteristics. Experience of out-of-home care ($\text{Exp}(\beta) = 1.84$, $p = .01$), sex ($\text{Exp}(\beta) = 2.51$; $p < .001$), and employment status ($\text{Exp}(\beta) = .53$, $p < .01$) contributed

Table 3. Differences in participant characteristics across clusters ($n = 370$)

Variable	Cluster 1 Elevated Wellbeing n (%)	Cluster 2 Reduced Wellbeing n (%)	x^2 (p)
OHC			5.53 (.01)
Yes	61 (53)	54 (47)	
No	168 (66)	87 (34)	
Sex			12.79 (.00)
Female	117 (54)	98 (46)	
Male	110 (73)	41 (27)	
Age (M, SD, t)	18.66 (1.83)	18.28 (1.95)	Ns
Birthplace			Ns
Sweden	188 (64)	104 (36)	
Not Sweden	41 (53)	36 (47)	
Citizenship			Ns
Swedish	214 (63)	128 (37)	
Other	13 (50)	13 (50)	
Primary language			Ns
Swedish	189 (64)	105 (36)	
Other	40 (53)	36 (47)	
In school			Ns
Yes	191 (62)	117 (38)	
No	38 (62)	23 (38)	
Employed			9.00 (.00)
Yes	110 (71)	45 (29)	
No	119 (56)	95 (44)	

Note: M = mean; SD = standard deviation; t = standard t-test; Ns = not significant at the $p \leq .05$ level.

significantly to the likelihood that an adolescent would experience elevated or reduced wellbeing. The regression model was statistically significant X^2 (3, 365) = 28.47, $p < .001$ and correctly classified 65% of cases (Nagelkerke $R^2 = .10$). Adolescents with experience of out-of-home care, girls, and unemployed adolescents were at higher odds of belonging to the reduced wellbeing group.

Discussion

This study adds to the current literature by being the first known to examine a range of wellbeing indicators and the extent to which they differed for adolescent girls and boys with and without experience of out-of-home care. Beyond its empirical contribution, the study offers both methodological and theoretical insights. Methodologically, we applied a person-centered cluster analysis to identify distinct wellbeing profiles among a heterogeneous group of adolescents. This approach moves beyond variable-centered methods and provides a more nuanced understanding of how multiple wellbeing indicators co-occur in real-world contexts. Theoretically, our multidimensional conceptualization of wellbeing – grounded in both subjective and psychosocial dimensions – extends current frameworks by incorporating a broad set of assets relevant to adolescent development. This contributes to the refinement of wellbeing theory in adolescence and informs the design of multi-component interventions.

With respect to the first research question, our analysis found that when exploring indicators in isolation, few differences were found between participants with and without experience of out-of-home care. As promoting wellbeing among adolescents placed in out-of-home care is of primary concern for child welfare services (Font & Fluke, 2024;

Social Services Act, 2001; United Nations, 1989), understanding where to target efforts for intervention and support are paramount. This targeting, however, is necessitated on a clear understanding of what needs to be promoted, that is which mechanisms of change are salient, in achieving wellbeing and for whom (Fraser & Galinsky, 2010; Olsson et al., 2023). In situations where the population in question is highly heterogeneous, such as with adolescents with out-of-home care experience, variable centered analyses may mask important subgroups of adolescents who cluster to form distinct wellbeing, and as such need, profiles. The finding that individual wellbeing indicators did not consistently differ between adolescents with and without out-of-home care experience suggests that disparities in wellbeing may not be apparent when indicators are examined in isolation. Instead, meaningful differences emerge only when multiple indicators are considered together. This supports the use of person-centered approaches that capture complex patterns of co-occurring strengths and vulnerabilities. For policy and practice, this implies that single-domain assessments may underestimate the needs of certain adolescents and that effective interventions should be designed to address broader, intersecting dimensions of wellbeing rather than targeting isolated issues.

In relation to our second research question, we identified two unique clusters of young people. These were (1) a group exhibiting comparatively elevated wellbeing and (2) a group exhibiting comparatively reduced wellbeing. The identification of two main clusters within groups of adolescents (e.g. wellbeing compromised and wellbeing elevated clusters) is emerging as typical within the adolescent wellbeing literature (Whitaker et al., 2021). These studies, however, typically conceptualize wellbeing in terms of risk-behaviors (e.g. substance use, alcohol use, self-harm) or healthy behaviors (e.g. sleep, eating habits, exercise; Evans et al., 2023; Mahon et al., 2022; Russell Jonsson et al., 2023; Stevely et al., 2024; Whitaker et al., 2021) as opposed to using indicators that capture the multidimensional nature of wellbeing in adolescence, which includes factors such as competence and skills, agency and resilience, and general health (Ross et al., 2020). This may be especially important when aiming to assess differences in wellbeing between boys and girls as adolescent boys more commonly exhibit reduced wellbeing in terms of externalizing behaviors, while girls more commonly exhibit reduced wellbeing in terms of internalizing behaviors (Nivard et al., 2017) which may partially explain our finding that girls were disproportionately found in the reduced wellbeing group. Prior analyses of the clustering of adolescents based on health and lifestyle behaviors, for example, find boys underrepresented in healthy behavior clusters (Russell Jonsson et al., 2023).

Of special interest in our findings is that adolescents in the compromised wellbeing cluster showed reduced wellbeing across all included indicators, which pinpoints an extremely vulnerable group of young people who lack resources across several wellbeing indicators. In many cases (6 of 10 indicators) this difference can be considered substantial as any policy or intervention attempting to close this gap entirely would need to have a large (Cohen's $d = 1.0$) effect (Cohen, 1988). The clustering of adolescents based on wellbeing indicators has important consequences for the design of interventions for this group of adolescents as this indicates that multi-component strategies (e.g. knowledge, competence, skills, and behaviors) as opposed to those targeting a single behavior may be needed (van Agteren et al., 2021). These types of interventions are emerging (Skoog et al., 2024) but not yet widespread (Bergström et al., 2023; Taylor et al., 2021) for adolescents placed in and transitioning from out-of-home care.

Our third and final research question asked what adolescent characteristics predict membership in unique wellbeing clusters. Similar to previous studies, most adolescents in this study belong to the elevated wellbeing cluster (Jonsson et al., 2023; Whitaker et al., 2021). Both adolescents with out-of-home care experience and girls, however, were more likely to be found in the reduced wellbeing cluster. Although this finding is not novel but expected, we would not have uncovered these differences without the person-centered approach to analysis given the multi-dimensional nature of wellbeing. Importantly, although adolescents with out-of-home care experience and girls were more likely to be found in the reduced wellbeing cluster, approximately 50% of these groups were found in the elevated wellbeing cluster. This is both promising and underscores the heterogeneity of both groups. Interventions to promote wellbeing among these groups need to be developed with care as intervening in error (e.g. including the wrong population) and targeting the wrong change mechanisms can harm participants even when intentions are good (Williams et al., 2021). This is in keeping with a general understanding that intervention fit, assessed from multiple perspectives, is an important precursor to intervention development (Karlsson et al., 2024; Olsson et al., 2024) and transfer (Olsson et al., 2020; Turner et al., 2022). As shown in this study, the most vulnerable group of adolescents in terms of cluster membership, was vulnerable across indicators and as such interventions for this group need be designed considering that vulnerabilities may increase or decrease depending on the extent to which an adolescent possesses or lacks other important resources for wellbeing.

Study limitations and future directions

Several limitations should be acknowledged when interpreting the findings of the current study. The limitations should be considered when designing future studies in the field. First, the analyses suffered from low cell counts in some subgroups. However, it should be noted that in sensitivity analyses using Fisher's exact test the results were the same as those using Chi^2 tests and which were presented in the study. The consistency of findings across different analytical methods strengthens the statistical conclusion validity of the observed patterns. Second, the study used two different samples recruited in two different ways, raising potential concerns about the selection mechanism and potential effects of that on the study findings. While the sample selection process was carefully designed and no significant systematic differences are likely due to the selection mechanism between the two groups (those with and without out-of-home care experience), this could still limit the broader applicability of the findings. Moreover, despite efforts to secure a representative sample of the general population, we cannot assume that the study samples are in fact representative of the broader population. The response rate in the general population sample was 21%. Although this is not a satisfactory number, it resembles that of previous studies using online surveys in the field (see Daikeler et al., 2020 for a meta-analysis). Nevertheless, there is a risk that there are systematic differences between responders and non-responders, which we are unable to investigate. Such differences threaten the representativeness of the sample and the generalizability of findings. Previous research on youth in out-of-home care have had similar response rates (Lemon et al., 2005; Olsson et al., 2020; White et al., 2015). Although a low response

rate might result in sampling bias and is a threat to the external validity of the findings, the problem might not be as important for drawing correct conclusions as was previously assumed (Holbrook et al., 2008). Our findings are based on a specific cohort and should not, however, be generalized beyond the study's demographic and geographic scope. In addition, these results should be interpreted as exploratory. Third, there were some missing values for individual items across the instruments used, but this did not hinder the calculation of total scores and subscales, which mitigates the potential impact of partial missingness on the study's findings. In most cases, this missingness was assessed to be MCAR. In one case, we could not determine whether data was missing completely at random (GHSQ). Missingness on the GHSQ, however, was total attrition and not missing on individual items. This attrition was equal across groups which increases confidence that this attrition did not unequally effect results. Lastly, the study lacks a standardized measure or set of indicators for assessing wellbeing. The instruments used, while validated and widely used, do not represent a unified or universally accepted metric of adolescent wellbeing, which may affect the comparability of these findings with other research. It should be noted that this is a general problem in the wellbeing literature (Gennings et al., 2021). This study found that adolescents with out-of-home care experience and girls were more likely to be found in the reduced wellbeing group. Due to the low sample size of this study, we were unable to investigate any possible relationship between out-of-home care experience and sex and that relationship's impact on wellbeing. Finally, we would like to emphasize that our results indicate a difference in wellbeing between our studied groups. This finding should not be interpreted as causal as our cross-sectional study design is unable to draw causal conclusions.

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TMO: conceptualization, methodology, formal analysis, writing original draft, writing review and editing, project administration, funding acquisition. **TS**: writing original draft, writing review and edition, funding acquisition.

Author contributions

CRediT: **Tina M. Olsson:** Conceptualization, Formal analysis, Funding acquisition, Methodology, Project administration, Writing – original draft, Writing – review & editing; **Therése Skoog:** Funding acquisition, Writing – original draft, Writing – review & editing.

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