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REGULAR ARTICLE

Self-esteem in children and adolescents with mobility impairment: impact on well-being and coping strategies

L Jemtå (Lena.Jemta@rehab.uu.se)[1], K S Fugl-Meyer[2], K Öberg[2], M Dahl[3]

1.Department of Neuroscience, Rehabilitation Medicine, Uppsala University, Uppsala, Sweden
2.Center for Andrology and Sexual Medicine, Karolinska University Hospital, and Department of Medicine, Karolinska Institute, Stockholm, Sweden
3.Department of Women's and Children's Health, Pediatrics, Uppsala University, Uppsala, Sweden

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Correspondence
L. Jemtå, Department of Neuroscience, Rehabilitation Medicine, University Hospital, Entrance 85, SE-751 85 Uppsala, Sweden.
Tel: +46-18-611-51-72 |
Fax: +46-18-611-28-90 |
Email: Lena.Jemta@rehab.uu.se

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Abstract

Aim: The first aim was to investigate dimension-specific and global self-esteem in children and adolescents with mobility impairment and to analyse the relation between self-esteem and demographic data and disability characteristics. The second aim was to identify the impact of five self-esteem dimensions on well-being and coping strategies.

Methods: A total of 138 children and adolescents aged 7–18 years with mobility impairment took part in a semi-structured interview. Demographic and disability characteristics were recorded and motor function was assessed. Self-esteem was measured by the 'I think I am' inventory. Perceived overall well-being was measured by a nine-grade visual scale, the Snoopy scale, and coping strategies by the Children's Coping Strategies Checklist.

Results: Although a majority estimated a relatively high level of dimension-specific and global self-esteem, several demographic and disability factors for lower self-esteem were identified. Those who estimated their 'physical characteristics' lower used the coping strategy 'distraction' more often. Three out of five dimensions of self-esteem were positively associated with perceived overall well-being: 'physical characteristics', 'psychological well-being' and 'relationships with others'.

Conclusion: Awareness of vulnerability factors for lower self-esteem in children and adolescents with mobility impairment offer health care professionals specific opportunities to enhance self-esteem in this group.

INTRODUCTION

The present study is one in a series of reports from a cross-sectional survey on Swedish children and adolescents aged 7–18 years with mobility impairment (1–3). Previously, we have reported that impairment *per se* does not influence well-being negatively, and that no particular coping strategy is more suitable than another in promoting a higher level of well-being in this group (1,2). In this study, the purpose was firstly to investigate dimension-specific and global self-esteem and to analyse the relation between self-esteem and demographic data and disability characteristics, and, secondly, to explore the impact of five different dimensions of self-esteem on well-being and coping strategies.

As constructs, 'self-concept' and 'self-esteem' are often used interchangeably. Self-concept has been approached with the question 'Who am I?' and self-esteem with the question 'Am I worthy?' (4). A review (5) over 20 years of ways of measuring self-concept/self-esteem with children and adolescents concludes that definitions of the concepts are still a subject of discussion although there is some agreement that 'self-concept refers to an overarching view of the self, whilst self-esteem reflects a person's evaluative assessment of themselves'. In the present study we, in agreement with Suonpää et al. (6), have chosen to investigate self-esteem defined as 'the cognitive and emotional concept of an individual about himself. It is an individual's own idea of himself and it also contains his understanding and definition of what kind of a person he is and how much he respects himself. Self-respect is dependent on a person's idea of his success in meeting the demands and reaching the goals which he has set for himself and of which he is more or less aware. It also depends on his idea of how he is valued by other people'.

Previous studies on self-esteem in young people with physical disabilities have yielded discrepant results, and uniform conclusions are not easily drawn possibly due to the heterogeneous samples as well as measurements (7). Physical disability has been associated with a lower sense of self-worth, greater anxiety and less integrated view of self (8) while other studies (9–11) have found no differences in global self-esteem comparing groups of children and adolescents with and without physical disabilities.

Wolman and Basco (12) demonstrated that parental permissiveness in social participation contributed to the self-esteem of adolescents with spina bifida, while school problems and a perception of disability by others were negative. Antle (13) found that age and social support from friends and parents were associated with global self-worth of young people with spina bifida or spinal cord injury. Furthermore, a lower level of self-esteem has been associated with a smaller social network (14) and a greater impact of the perception of disability (15).

The development of self-esteem is fundamental for children's and adolescents' adaptive functioning and perceived well-being (16). Mobility impairment involves a variety of potential stressors that could influence the physical, cognitive, emotional and social development among children and adolescents and thereby self-esteem. We cannot possibly grasp the entire identity development; however, deeper knowledge of self-esteem could identify vulnerability as well as protecting factors of importance for the adaptation and well-being in young people with mobility impairment.

METHOD

Participants

Details of the participants and the study design and procedure have been described previously (1,2). The study included all the registered children and adolescents aged 7–18 years at the two regional Child Development Centres (CDCs) in the county of Uppsala, Sweden, and at three CDCs and all the schools with special classes for mobility-impaired children in the county of Stockholm, Sweden. Inclusion criteria were mobility impairment and ability to communicate in Swedish. Children and adolescents with mental retardation, deafness or severe hearing impairment, blindness or severe visual impairment or a neuro-psychiatric diagnosis were excluded.

In all, 141 out of 216 contacted children and adolescents participated (response rate 65%). In the present study, three children/adolescents were excluded because of missing data in the variables measuring self-esteem. Thus, 138 children and adolescents (67 girls and 71 boys) aged 7–18 years (mean age 12.3 years) were included. Demographic data and disability characteristics of the participants are presented in Table S1.

Measurements

Children and adolescents took part in an extensive semi-structured interview. The present study includes results of the variables concerning demographic data, disability, well-being and coping strategies (1,2). Perceived overall well-being was measured by a global question, where the child or adolescent estimated his or her well-being over the last 6 months on a nine-grade visual scale, the Snoopy scale: from A (the worst possible well-being) to I (the best possible well-being) (1). Coping strategies were measured by a self-report inventory, the Children's Coping Strategies Checklist (CCSC), including 52 items that form four dimensions of children's coping strategies: 'active coping', 'distraction', 'avoidance' and 'support seeking' strategies (2,17).

Self-esteem was measured using 'I think I am', a Swedish self-report inventory (18). The items for the scale were derived from internationally well-established instruments, and then adjusted to Swedish conditions and standardized on a Swedish sample of 3465 children and adolescents (19). Assessment of internal consistency and stability over time has demonstrated an adequate reliability of 'I think I am', and four validity studies, mainly concerning construct validity, indicated that the inventory measures the aspect intended (18). 'I think I am' has been used in both non-clinical (6) and clinical groups, for example in adolescents with cerebral palsy (20) and in children with attention and/or learning deficits (21). The inventory is designed in a 32-item version for children aged 7–9 years, and a 72-item version for children and adolescents aged 10–18 years. 'I think I am' includes five dimensions: 'physical characteristics' (appearance, body image), 'talents and skills', 'psychological well-being' (psychological stability, strength, anxiety, aggressiveness), 'relationships with family' (parents, siblings) and 'relationships with others' (friends, teachers). The instrument allows measurement of global self-esteem as well as independent measurement of each dimension; thus confounding of physical characteristics could be controlled. Children report on whether they think that the different statements describe them. The answering alternative for the 32-item version is 'yes' or 'no' and for the 72-item version 'exactly', 'to a certain extent', 'not very well' or 'not at all'. All points are summarized and the total score range from -32 to $+32$ for children aged 7–9 years and from -144 to $+144$ for children and adolescents aged 10–18 years.

Procedure

All interviews were performed by the first author (LJ). The version of 'I think I am' for children aged 7–9 years ($n = 34$) were read aloud by the interviewer. Participants aged 10–18 years filled in 'I think I am' by themselves in private either between two interview sessions ($n = 57$) or at one of the interview sessions ($n = 8$). Those who could not complete the form all by themselves because of motor difficulties were allowed to choose a helper: 29 chose the interviewer and 10 chose a personal assistant or a teacher.

Statistical methods

All statistical analyses were carried out using SAS/STAT® software version 9.1.3. Results were defined statistically significant if the p-value was less than 0.05.

In order to perform statistical analyses on the entire data set, we chose to transform the total scores of 'I think I am' to a normalized score between -1 and $+1$. The total score for children aged 7–9 years was divided by 32, while the total score for those aged 10–18 years was divided by 144. The dimension scores were normalized in an analogous procedure. Thus, we achieved a score between -1 and $+1$ for the total score as well as the dimension scores of the 32-item and the 72-item version of 'I think I am'. Multiple regression analysis was used to investigate the relationship between self-esteem and the different explanatory variables: seven on demographics and six on disability characteristics (see Table S1). Consequently, six separate regression models were built: one for global self-esteem and one for each of the five dimensions.

The impact of the five different dimensions of self-esteem on perceived overall well-being was analysed by a generalized linear model. Well-being measured by the Snoopy scale was analysed as a nine-grade ordinal variable. The impact of the five different dimensions of self-esteem on coping strategies was analysed in four multiple regression models, one for

Table 1 Means, standard deviations and minimum and maximum values for the dimensions of self-esteem and global self-esteem of 'I think I am' (18) (n = 138)

Variable	Mean	SD	Minimum	Maximum
Physical characteristics	0.59	0.32	−0.36	1.00
Talents and skills	0.48	0.36	−1.00	1.00
Psychological well-being	0.50	0.36	−0.50	1.00
Relationships with family	0.66	0.32	−0.89	1.00
Relationships with others	0.62	0.29	−0.21	1.00
Global self-esteem	0.57	0.26	−0.38	1.00

each coping strategy. In all regression analyses the starting models were based on the significant variables in univariate analyses, included and excluded in a backward stepwise procedure.

Ethics

The study was approved in 1998 by the Research Ethics Committee at the Faculty of Medicine at Uppsala University (registration number 98384).

RESULTS

Self-esteem, demographic data and disability characteristics

The majority of the children and adolescents reported a relatively high level of dimension-specific and global self-esteem (see Table 1). The final multiple regression models of the five dimensions of self-esteem and global self-esteem are presented in Table 2.

Physical characteristics

Significantly lower estimation of 'physical characteristics' was reported by older (in cohorts) children and adolescents, first-generation immigrants, those who experienced pain and those with a higher level of motor function.

Talents and skills

The sole significant relationship between the dimension 'talents and skills' and the evaluated variables was that older (in cohorts) children and adolescents estimated their talents and skills significantly lower than the younger ones.

Psychological well-being

Significantly lower estimation of 'psychological well-being' was reported by older (in cohorts) children and adolescents, those with an acquired disease or injury, those who experienced pain and children and adolescents who were dependent in activities of daily living (ADL).

Relationships with family

There were no significant associations between 'relationships with family' and the evaluated variables.

Relationships with others

Significantly lower estimation of 'relationships with others' was reported by older (in cohorts) children and adolescents and those with an acquired disease or injury.

Global self-esteem

Significantly lower estimation of global self-esteem was reported by older (in cohorts) children and adolescents, first-generation immigrants, those with an acquired disease or injury and those with experience of pain.

Self-esteem, well-being and coping strategies

Multivariate analysis demonstrated that out of the five self-esteem dimensions, three were significantly associated with perceived overall well-being: 'physical characteristics', 'psychological well-being' and 'relationships with others'. Children and adolescents who estimated higher levels of 'physical characteristics', 'psychological well-being' and 'relationships with others' reported a higher level of perceived overall well-being ($p = 0.0229$, $p = 0.0185$ and $p = 0.0161$, respectively). The final multivariate model shows how the expected level of estimated well-being varies with different values of the three predictor variables. Figure 1 illustrates that the probability for a higher level of well-being increases with a higher estimate of self-esteem and vice versa.

The multivariate analyses of the five dimensions of self-esteem in relation to each of the four coping strategies demonstrated only one significant association: children and adolescents who estimated their 'physical characteristics' lower used the 'distraction strategies' to a greater extent ($p < 0.0001$).

Table 2 Relationships between the dimensions of self-esteem and global self-esteem of 'I think I am' (18) and the different background variables in the final multiple regression models (n = 138)

Variable	Physical characteristics p-value	Talents and skills p-value	Psychological well-being p-value	Relationships with family p-value	Relationships with others p-value	Global self-esteem p-value
Demographics						
Age cohort (7–9/10–12/13–15/16–18 years)	<0.0001	<0.0001	<0.0001	–	<0.0001	<0.0001
First-generation immigrant (yes/no)	0.0025	–	–	–	–	0.0376
Disability characteristics						
Motor capacity (0–258)	0.0430	–	–	–	–	–
Independent in ADL (yes/no)	–	–	0.0099	–	–	–
Acquired disease/injury (yes/no)	–	–	0.0040	–	0.0280	0.0260
Presence of pain (yes/no)	0.0226	–	<0.0001	–	–	0.0033

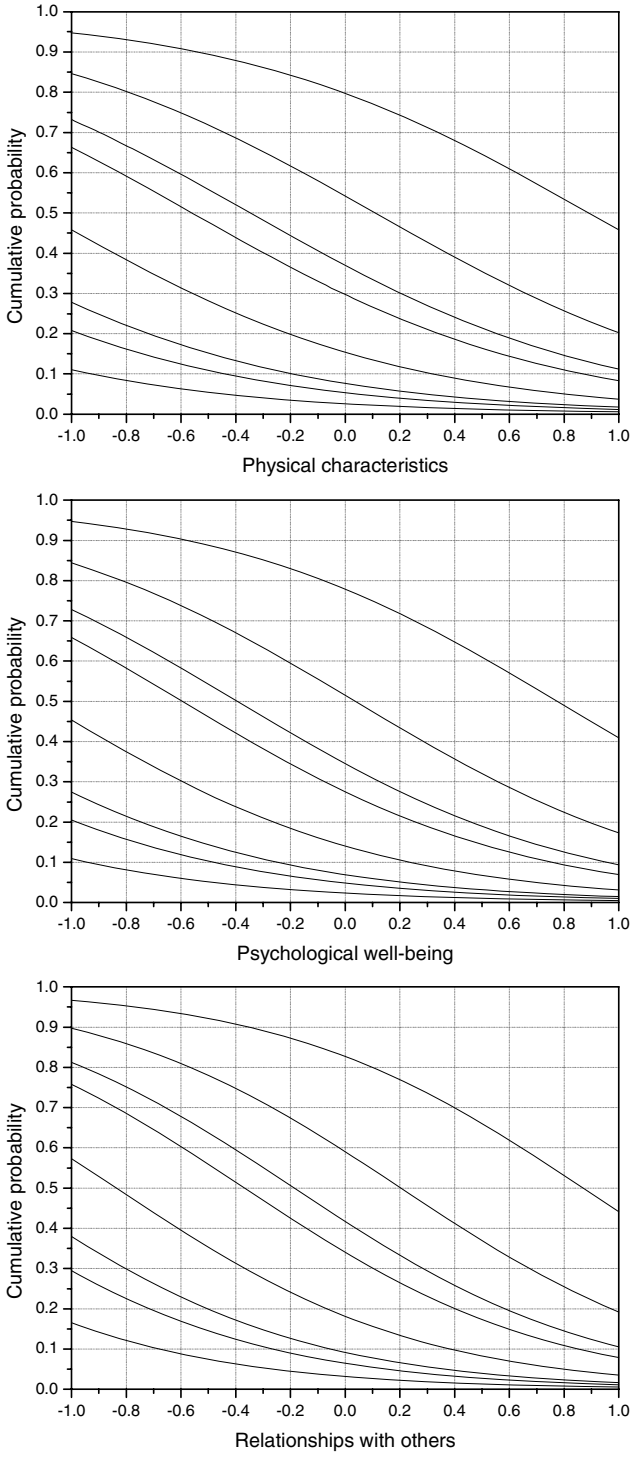

Figure 1 Cumulative probability for perceived overall well-being estimated on the Snoopy scale in relation to the three dimensions of self-esteem: 'physical characteristics', 'psychological well-being' and 'relationships with others'. Predicted probability for different values on each of the dimensions is based on a child or adolescent with levels on the remaining two dimensions equal to the mean of the sample (see Table 1). The lowest curve in each panel represents the estimated probability for Snoopy = A, the second curve the estimated probability for Snoopy ≤ B, and so forth (n = 138).

DISCUSSION

Notwithstanding the finding that a majority of the children and adolescents with mobility impairment in the present study reported a positive self-esteem, we have identified demographic and disability vulnerability factors for a lower level of global and several dimension-specific aspects of self-esteem.

The finding that a majority in the present study reported positive self-esteem is indeed encouraging and indicates that the mobility impairment *per se* does not necessarily influence self-esteem negatively. The relationship between disability characteristics and self-esteem should have a direct effect for professionals engaged in the care and treatment of young people with mobility impairment. Acquired disease or injury and experience of pain stand out as the variables responsible for most of the significant relationships to a lower level of self-esteem, and have elsewhere by us (1) been identified as risk factors for a lower level of well-being. Children and adolescents with an acquired disease or injury have expressed regrets of loss of their identity (1). Pain has been found to be common among young people with impaired mobility and further associated with lower self-reported well-being/quality of life (1,22,23). Moreover, Russo et al. (23) demonstrated that pain was also related to a lower level of self-concept. The significant associations between pain and self-esteem clearly demonstrate a need for specialized management regarding pain. Hence, we acknowledge the importance of providing opportunities for psychological evaluation and support for these young people.

The present findings are in agreement with a meta-analysis (7) concluding that minor physical disabilities had a large negative effect on the self-esteem of physical competence. Minchom et al. (24) found that among young people with spina bifida greater severity of disability was associated with increased self-esteem in physical appearance and global self-worth. In contrast, using the same self-esteem measure, Antle (13) found no significant relationships between severity of disability and perceptions of physical appearance or global self-worth in children and adolescents with spina bifida and spinal cord injuries. These contradictory findings could partly be explained by disparities in the definitions of severity of disability. In the present study, where degree of impairment was assessed by motor function (25), those with a higher motor function estimated their 'physical characteristics' lower. One tentative explanation could be that young people with minor functional limitations identify with their peers without disabilities and therefore are met with larger demands from themselves as well as the environment. Another explanation may be that children and adolescents with major *visible* physical disabilities to a relatively larger extent receive other people's empathy and attention and consequently get greater opportunities to receive social support (7). The finding that independence in activities of daily living was positively associated with estimated 'psychological well-being' partly corresponds to findings of a positive relationship between increased independence and social self-efficacy among adolescents with physical disabilities (4).

In consensus with findings about the self-esteem development across the lifespan (26), we found that greater age (in cohorts) was significantly related to a lower level of self-esteem. On the other hand, we could not confirm the gender differences (4,10,15) showing that girls estimate lower self-esteem than boys. Being a first-generation immigrant appears to be a vulnerability factor. Previously we (1) have found a lower level of perceived overall well-being, and in the present study these children and adolescents reported a lower level of 'physical characteristics' as well as global self-esteem. Possibly, children and adolescents with refugee experiences meet further challenges while adapting to their changed life situation. Stiller and Alfermann (27) maintain that the structure of physical self-concept within Western culture is quite consistent, although they suggest that there could be differences within the hierarchical levels between subcultures such as gender and nations. Increased knowledge regarding possible socio-cultural differences in perception of body image and appearance in this group is required for a better understanding.

Whereas the body of literature on the relationships between self-esteem and demographic and disability features is rather extensive, the interaction with coping strategies remains largely unexplored. In adolescents without disabilities, it has been suggested that lower self-esteem is related to more avoidance coping strategies while higher self-esteem is related to more problem-focused coping (28,29). In the present study, we found that a lower estimate of 'physical characteristics' was significantly related to an increased use of 'distraction strategies'. We have no plausible explanation for this result and suggest that further studies investigate the determinants and the mediators of self-esteem to understand the complex interaction with coping strategies during development.

As expected, 'psychological well-being' was positively associated with perceived overall well-being. Similar results have been found in children and adolescents without disabilities (30). Difficulties in making friends and participating in social activities are of major concern for young people with mobility impairment. Hence, the finding that 'relationships with others' have an impact on perceived overall well-being is of great importance for parents, professionals and others close to the child or adolescent as well as for society as a whole. By taking action to improve accessibility in society and to promote participation for this group of young people, we could influence their perceived overall well-being favourably.

The significant association between 'physical characteristics' and perceived overall well-being is of major clinical importance for paediatric physiotherapists as well as other care givers involved in care and treatment. Children and adolescents with impaired mobility are in need of physiotherapy in varying degrees throughout their lives. Physiotherapy involves the interaction between the child or adolescent and the physiotherapist including both verbal and non-verbal communication about the body image, function and ability. Feedback during treatment most probably influences the development of self-esteem. Furthermore, interventions to improve children's and adolescents' estimations of their 'physical characteristics' could consequently lead to a higher level of well-being.

We conclude that although children and adolescents with mobility impairment reported relatively positive self-esteem, several vulnerability factors were identified. By proper interventions, physiotherapists and other health care professionals have specific opportunities to enhance self-esteem for those vulnerable young people.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Table S1: Demographic data and disability characteristics on children and adolescents with mobility impairment (n = 138)

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