

Self-determination, social abilities and the quality of life of people with intellectual disability

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Summary

Background The international literature has documented that self-determination is impacted by environmental factors, including living or work settings; and by intraindividual factors, including intelligence level, age, gender, social skills and adaptive behaviour. In addition, self-determination has been correlated with improved quality of life (QoL). This study sought to contribute to the growing literature base in this area by examining the relationship among and between personal characteristics, self-determination, social abilities and the environmental living situations of people with intellectual disabilities (ID).

Methods The study involved 141 people with ID residing in Italy. Healthcare professionals and social workers who had known participants for at least 1 year completed measures of self-determination, QoL and social skills. Analysis of variance was conducted to verify whether different levels of intellectual impairment were associated with different degrees of the dependent variables. The Pearson product-moment correlation was used to examine any relationships among dependent variables and IQ scores. Finally, discriminant function analysis was used to examine the degree to which IQ score,

age, self-determination and social abilities predicted membership in groups that were formed based on living arrangement, and on QoL status (high vs. low).

Results The ANOVA determined, as expected, that participants with more severe ID showed the lowest levels of self-determination, QoL and social abilities. Discriminant function analysis showed that (a) individuals attending day centres were distinguished from those living in institutions in that they were younger and showed greater autonomy of choice and self-determination in their daily activities; (b) basic social skills and IQ score predicted membership in the high or low QoL groups; and (c) the IQ score predicted membership in the high or low self-determination groups. A MANOVA conducted to examine gender- and age-level differences on self-determination found gender differences; women had higher self-determination scores than men.

Conclusions These findings contribute to an emerging knowledge base pertaining to the role of intraindividual and environmental factors in self-determination and QoL. In general, the study replicated findings pertaining to the relative contribution of intelligence to self-determination and QoL, added information about the potential contribution of social abilities, and pointed to the potentially important role of opportunities to make choices as a particularly important aspect of becoming more self-determined, at least in the context of residential settings.

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Introduction

The scholastic, vocational and social participation and integration of people with intellectual disabilities (ID); habilitative and rehabilitative programme goals; and even the quality of life (QoL) construct all reference themes pertaining to self-determination, albeit sometimes implicitly. Research has linked higher self-determination to more positive adult outcomes for youth with disabilities (Wehmeyer & Schwartz 1997; Wehmeyer & Palmer 2003), as well as to a higher QoL (Wehmeyer & Schwartz 1998; Lachappelle *et al.* 2005). Soresi *et al.* (2003) examined healthcare and social worker evaluations of 40 people in Italy and found a significant correlation with measures of personal satisfaction. People with lower self-determination had greater maladjustment problems, and showed higher rates of isolation, mood swings and more interpersonal communication problems.

Importantly, there is evidence that people with intellectual and developmental disabilities can become more self-determined, if provided adequate supports (Wehmeyer *et al.* 2003). Given the importance of supports to enable people with intellectual and developmental disabilities to become more self-determined, it is critical to gain knowledge about what factors, both environmental and intraindividual, contribute to self-determination so that supports can be designed to enable greater opportunities for self-determination. There is an emerging evidence-base with regard to environmental factors and personal characteristics that impact self-determination (Stancliffe 2001). The present study was designed to contribute to that knowledge base.

Intraindividual and environmental factors contributing to self-determination

Environmental factors related to self-determination

Wehmeyer *et al.* (1995) examined the self-determination of adults with ID, as measured by

opportunities to make choices and decisions, self-advocate and set goals, as a function of whether they lived independently, with family, in a small congregate setting, or in a large congregate setting (with 10 or more other people). Analysis for total self-determination by living arrangement with level of disability (not IQ) as a covariate indicated significant overall effects for living situation, with people living independently being the most self-determined and people in large congregate settings the least.

Tossebro (1995) studied the relationship between self-determination and the number of people with whom another person lived, for 591 people with ID. Staff members rated the freedom the person had to make decisions and influence activities in his or her life, then correlated these ratings with living unit size. Self-determination was significantly, positively related to unit size for residences with 1–5 residents ($r = 0.48$), but was not significantly related to unit size for residences with 6–16 residents ($r = -0.05$).

Wehmeyer & Bolding (1999) examined the role of living or work environments on self-determination. A total of 273 adults with ID were recruited based on whether they worked or lived in community-based, small congregate, or large congregate living or work environments. Participants in each group were matched with another person in each other group based on IQ, age and gender, resulting in 91 matched triplets, in which individuals differed only by the environment in which they lived or worked. Data analysis indicated that there were significant differences in level of self-determination, autonomy, life satisfaction and opportunities to make choices, with persons who lived or worked in non-congregate community-based settings having significantly more adaptive scores on each measure. Wehmeyer & Bolding (2001) conducted another study in which they measured the self-determination of individuals with ID before and after they moved from more restrictive to less restrictive environments. There were significant changes on measures of self-determination, goal setting and choice-making after the move.

Stancliffe *et al.* (2000) measured the exercise of capacity to perform behaviours related to self-determination of 74 people with ID living in small group homes or larger residential facilities. They also collected data on resident participation in decisions, resident autonomy and perceptions of staff

members. Expression of self-determination and self-determination competencies differed significantly as a function of residency type, with people living semi-independently being the most self-determined. Stancliffe *et al.* (2000) also found that semi-independent living services were more conducive to individualization and to consumer and staff autonomy.

Other studies have examined the impact of environment on choice opportunities. Conroy (1996) found that indicators of QoL, including choice opportunity, were significantly less positive for 51 people with ID living in congregate, community-based residences than for 51 people matched by age, gender, adaptive behaviour and challenging behaviour who lived in non-congregate community-based settings. Stancliffe & Abery (1997) compared choices made by individuals who had moved from an institution to the community with choices made by people who had stayed in the institution. People who moved had significantly more choice opportunities even though groups did not differ at baseline, and these differences were not a function of level of intellectual impairment. Stancliffe & Abery noted, however, that the absolute level of choice-making opportunities available to all study participants was very low. Stancliffe (1997) found that the size of a person's residence significantly influenced opportunities that person had to make choices, with adults with ID who lived in small community-based settings in which there were fewer staff and fewer other residents having significantly more opportunities to make choices.

Emerson *et al.* (2001) measured an array of variables, including choice availability, for people with ID in the UK residing in supported living ($n = 63$), small group homes ($n = 55$) or large group homes ($n = 152$). Residents in supported living residences experienced 'greater choice overall, [and] greater choice over with whom and where they lived' (p. 409) when compared with residents in small or large group homes.

Duvdevany *et al.* (2002) measured choice opportunities of 80 adults with ID in Israel, half of whom lived in their family home and the other half lived in a group home. Participants living in their family home had significantly more choice opportunities, although this effect was mitigated by the effect of several intraindividual characteristics, described

subsequently. Finally, Heller *et al.* (2002) conducted a longitudinal study, following up on changes in a number of variables, including choice-making, for 186 people with ID, and found that congregate settings were related to decreased opportunities for choice-making.

Intraindividual factors contributing to self-determination

There are limited data pertaining to the contribution of individual characteristics, including intelligence level, age, gender and adaptive behaviour, on self-determination. Stancliffe *et al.* (2000) measured adaptive and challenging behaviour using the *Inventory for Client and Agency Planning* (Bruininks *et al.* 1986), and conducted regression and path analyses to examine the contribution of these and self-determination competencies to the expression of self-determination. Both competencies and adaptive/challenging behaviours were significant predictors of the expression of self-determination, although the latter predicted expression of self-determination only indirectly, while 'self-determination competencies' predicted expression of self-determination directly, as did agency policies and procedures supporting greater individual and staff autonomy. Perry & Felce (2005) found that objective measures of choice were positively correlated with adaptive behaviour scores.

Data pertaining to differences in self-determination by gender are also limited and findings mixed. Soresi *et al.* (2004) found, in an Italian sample, that men tended to show a higher degree of self-determination than women. Wehmeyer (1996) examined the self-determination of adolescents with intellectual and learning disabilities, of whom 223 were male and 210 were female. There were no significant differences between men and women on overall self-determination scores, although women scored slightly higher than their male counterparts. Similarly, Wehmeyer & Garner (2003) found no differences on self-determination scores by gender for 300 people with intellectual and developmental disabilities.

As to the impact of age on self-determination, Wehmeyer & Garner (2003) found that age did not predict the membership of adults with intellectual and developmental disabilities in a high or low self-

determination group, although age did predict membership in a high or low autonomy group, with older people more likely to be in the high autonomy group. In a sample of students aged 15–18 years, Wehmeyer (1996) found a consistent trend for higher self-determination scores as a function of increased age.

Finally, there has been a consistent relationship between self-determination and intelligence level, as measured by IQ scores. Stancliffe *et al.* (2000) found that study participants with mild intellectual impairments had higher self-determination scale scores. Similarly, Wehmeyer (1996) found that there were highly significant differences among students ($n = 500$ for the sample) without disabilities, students with learning disabilities and students with ID on total self-determination scores, with students without disabilities having the highest scores and students with ID the lowest. Wehmeyer and colleagues have found a generally consistent, statistically significant relationship between measured self-determination and IQ scores. In a large sample of people with intellectual and developmental disabilities, for example, Wehmeyer & Garner (2003) found a correlation of $r = 0.15$ between self-determination scores and IQ scores.

It appears, however, that the relationship between self-determination and intelligence is complex. Wehmeyer & Garner (2003) conducted a discriminant function analysis of predictors for self-determination scores for individuals with ID and found that only choice opportunity (from among four variables, including IQ score) predicted membership in a high self-determination group. Similarly, a discriminant function analysis of autonomous functioning scores found everything but IQ scores as significant predictors, with higher perceptions of choice opportunity being the most powerful predictor.

The discriminant function analyses for living or work outcomes found, however, that level of IQ was the *most* significant contribution to more positive outcomes and, for employment outcomes, IQ was the only significant predictor. For living outcomes, both self-determination and autonomy also predicted more positive living outcomes. In other words, IQ level predicted where people would live or work, but was not a predictor of whether they would be self-determined. Only choice opportuni-

ties predicted the latter, a finding that is consistent with the previously reviewed literature on the relationship between choice and environment.

Self-determination, quality of life and social abilities

Self-determination has been conceptually and correlationally linked to a more positive QoL. Wehmeyer & Schwartz (1998) studied the relationship between self-determination and QoL for 50 adults with ID who lived in group homes, and found that self-determination status predicted membership in a high QoL group. Lachappelle *et al.* (2005) examined the relationship between self-determination and QoL for 182 adults living in community settings in Canada, the United States, Belgium and France. Discriminant function analysis indicated that essential characteristics of self-determined behaviour predicted membership in the high self-determination group and, overall, self-determination and QoL were significantly correlated ($r = 0.49$).

Neely-Barnes (unpublished manuscript) examined the influence of choice opportunities and living arrangements on QoL for 220 people with developmental disabilities. Using structural equation modelling, Neely-Barnes found that community-based living arrangements and greater opportunities to make choices were associated, and these two were, in turn, associated with greater QoL.

Additionally, a person's social abilities play a crucial role in learning and in coping with daily life. Indeed, many studies now highlight how poor social abilities are associated with difficulty in establishing and maintaining interaction with significant others, problems achieving a satisfactory degree of social acceptance, and difficulty in attaining higher academic and career achievement and a better QoL (Elliott 1988; Chadsey-Rusch 1990; Walker *et al.* 1992; Nota & Soresi 1997; Cristiano & Nota 1998; Soresi & Nota 2000). Social abilities both act with and, presumably, contribute to self-determination and can help promote better life conditions for people with ID and lead to enhanced social inclusion (Nota & Soresi 2004; Soresi & Nota 2004).

Purpose of study

This study sought to contribute to the knowledge base pertaining to the contribution of environmen-

tal and intraindividual characteristics on self-determination. The study's primary intent was to examine the relationship between personal characteristics (including intelligence level and age), self-determination, social abilities, and the residential or daily living status of people with ID. We examined participants with ID living in residential institutions, semi-residential institutions (day centres), and in assisted group housing (houses or apartments). We were interested in examining whether the personal characteristics of intelligence, age, self-determination and social abilities would predict degree of restrictiveness of living conditions, as found in Wehmeyer & Garner (2003), in environments that ranged from highly restrictive (residential institutions), to somewhat restrictive (day centres), to low restrictiveness (assisted group housing). We were also interested in the role of these characteristics on QoL. We were also interested in examining the role of social abilities in self-determination and QoL outcomes.

Method

Participants

Study participants were 141 people with ID residing in northern and central Italy. Ninety-eight of the participants were male. Twenty-seven (27.6%) of the men had mild ID; 33 (33.7%) had moderate ID; and 38 (38.8%) had severe ID. Forty-three participants were women, 9 of whom (20.9%) had mild ID; 19 (44.2%) had moderate ID; and 15 (34.9%) had severe ID. Participants' mean age was 35.75 years (SD = 10.06). Twenty-five participants were between 16 and 25 years of age (17.7%); 42 were between 26 and 35 years of age (29.8%); 46 were between 36 and 45 years of age (32.6%); and 28 participants were between 46 and 65 years of age (19.9%).

Sixty-six participants (46.8%) lived in institutions; 24 (17%) lived in community-based assisted group housing; and 51 participants (36.2%) attended day centres for people with ID. All facilities are, typically, located on the outskirts of towns or, more frequently, in villages. Day centres typically have a ratio of about three consumers to one staff person, with between 15 and 20 consumers in the centre. The support staff to person ratio for

both institutions and assisted living settings is typically two consumers to one staff person. Institutions housed 20 or more people, assisted living residences supported small groups of two to three people, although in some settings apartments were co-situated with several groups people supported, thus up to nine residents could reside in a complex. Twelve of the participants residing in an institution (18.2%) had mild ID; 9 (13.6%) had moderate ID; and 45 (68.2%) had severe ID. Eleven (45.8%) of the participants who lived in assisted group housing had mild ID; 11 (45.8%) had moderate ID; and 2 (8.3%) had severe ID. Thirteen (25.5%) of the participants attending day centres for at least 8 h every day had mild ID; 32 (62.7%) had moderate ID; and 6 (11.8%) had severe ID.

We were able to obtain QoL data for only 90 participants – those living in institutions and in assisted group housing.

Measures

The *Evaluation of Self-Determination Instrument* (ESI; Soresi *et al.* in press) was used to assess self-determination capacity, and consists of 24 items asking staff members to rate people under their supervision on a scale ranging from 1 (high degree of self-determination) to 7 (poor self-determination), where 1 = the person always decides/the person always freely expresses his/her opinions, thoughts or emotions and 7 = it is always others who decide/the person never openly expresses his/her opinions, thoughts or emotions. The scale assesses: (a) *self-determination in various daily activities* (13 items, e.g. 'What to wear: it is the person who always decides/it is others – staff, parents – who always decide'; 'Bedtime: it is the person who always decides/it is others – staff, parents – who always decide'; 'How to decorate his/her room: it is the person who always decides/it is others – staff, parents – who always decide'; possible scores ranged from 13 to 91; $\alpha = 0.96$); (b) *self-determination in expressing opinions, ideas and emotions* (five items, e.g. 'The person's emotions: he/she always expresses them openly/never expresses them openly'; 'What he/she thinks of others: the person always expresses it openly/never expresses it openly'; possible scores ranged from 5 to 35; $\alpha = 0.92$); (c) *self-determination in activities and com-*

mitments (three items, e.g. 'Activities he/she participates in throughout the day: it is the person who always decides/it is others who mostly decide'; 'Commitments: it is the person who always decides what he/she will take on/it is others – staff, parents – who always decide what he/she will take on'; possible scores ranged from 3 to 21; $\alpha = 0.86$); (d) *self-determination in choices and desires* (three items, e.g. 'What he/she desires: the person always manages to achieve it/the person never manages to achieve it'; 'His/her choices: the person always manages to make them be respected/the person never manages to make them be respected'; possible score range was 3–21; $\alpha = 0.77$).

A series of exploratory and confirmatory factor analyses yielded support for a four-factor structure, accounting for 73.49% of the total variance (Soresi *et al.* in press). Corresponding reliability estimates for the present study were 0.96 for the first factor, 0.91 for the second, 0.85 for the third, and 0.77 for the fourth factor. Low scores indicate high levels of self-determination.

Because this study utilized proxy-report indicators of self-determination, QoL and social abilities, it is important to consider the appropriateness of proxy reports. Self-determination and QoL have, most frequently, been measured using self-report indicators, but there are times when self-report measures are not appropriate, including when: (a) respondents have intellectual impairments that impact their capacity to respond to cognitively complex questions or questions that require meta-cognitive capacity (Chadsey-Rusch 1992; Soresi *et al.* 2003); and (b) respondents have intellectual impairments that may increase the probability that the person will respond in an acquiescent manner (Sigelman *et al.* 1981). Further, complex constructs such as self-determination and QoL likely cannot be accurately measured using any one approach (e.g. subjective vs. objective measures) (Schalock & Alonso 2002; Nota *et al.* 2006).

Research on the extent to which the reports of third parties agree with self-reports from people with ID has yielded conflicting results. Research has cast doubt on the reliability of proxy responses, particularly in the case of questions about resident satisfaction with various aspects of their lives (e.g. Berkson & Romer 1980; Burnett 1989; Voelker *et al.* 1990; Rapley *et al.* 1997; Stancliffe 1997; Perry &

Felce 2003). Cummins (2002), in fact, suggested that proxy indicators cannot be used as valid indications of subjective well-being of individuals with ID. The accuracy of health and social services providers and of family members may be compromised by a number of factors, such as tendency to underestimate perceived functional status of individuals with a disability, difficulties in getting rid of prejudice, difficulties in actually knowing people's most personal experiences, etc. However, there is also evidence of consumer-proxy agreement (e.g. Voelker *et al.* 1990; Schalock & Keith 1993; Stancliffe 1999; McVilley *et al.* 2000).

Acknowledging Cummins's (2002) concerns about the difficulties that others may encounter in estimating the QoL or self-determination of people with disabilities, we also note Schalock and Alonso's (2002, p. 271) statement that 'measurement of one person's quality of life from another person's perspective might be useful in some instances, such as where people are not able to speak for themselves and others make life decisions on their behalf, but such measurement should be clearly identified as another person's perspective'.

The *Evaluation of Quality of Life Instrument* (EQLI; Nota & Soresi 2002; Soresi *et al.* 2003; Nota *et al.* 2006) was used to assess participants' QoL. The EQLI consists of 14 items that examine: (a) *quality of service received* (eight items, e.g. 'How satisfied do you think Mr./Ms. . . . is about the amount of time the personnel devote to him/her?'; 'How satisfied do you think Mr./Ms. . . . is about the type of rehabilitation activities you carry out?'; possible score range was 8–40; $\alpha = 0.87$); (b) *satisfaction for the possibility to benefit from opportunities for social interaction, opportunities for social integration* (three items, e.g. 'How satisfied do you think Mr./Ms. . . . is about the opportunity to visit stimulating new environments?'; 'How satisfied do you think Mr./Ms. . . . is about the opportunity to increase the number of social interactions outside of the centre/institution?'; possible score range was 3–15; $\alpha = 0.85$); (c) *satisfaction about characteristics of environments* (three items, e.g. 'How satisfied do you think Mr./Ms. . . . is about the hygiene and tidiness of the Centre/Institution?'; 'How satisfied do you think Mr./Ms. . . . is about how the centre/institution or ward is furnished?'; possible score

range was 3–15; $\alpha = 0.73$). Items were rated on a 5-point Likert-type scale, ranging from 1 'does not describe him/her at all' to 5 'describes him/her perfectly well'. There were two further response options: 'I cannot evaluate that' and 'the performance is beyond the individual's ability'. A series of exploratory and confirmatory factor analyses provided support for a three-factor structure, accounting for 60.13% of the total variance (Nota & Soresi 2002; Nota *et al.* 2006). Corresponding reliability estimates for the present study were 0.86 for the first factor, 0.85 for the second, and 0.72 for the third factor. As to concurrent validity, a correlation higher than $|0.30|$ with the *Quality of Life Index* (Keith *et al.* 1986) indicated that these two instruments investigate similar constructs (Cohen 1988).

The *Social Ability Evaluation Scale for Adults with Mental Retardation* (VAS-ARM; Nota *et al.* 2001) was administered to staff members to measure participants' social abilities. The VAS-ARM is composed of 16 items describing positive social performance. Items are rated on a 5-point Likert-type scale, ranging from 1 'does not describe him/her at all' to 5 'describes him/her perfectly well'. There were two further response options: 'I cannot evaluate that' and 'the performance is beyond the disabled individual's ability'. Specifically, the scale assesses: (a) *basic social abilities* (eight items, e.g. 'Says "hello" when he/she meets a caregiver or staff member'; 'Accepts compliments and/or approval from others'; the possible score range was 8–40; $\alpha = 0.88$); (b) *abilities of interaction management* (eight items, e.g. 'Expresses clearly what he/she wants'; 'If engaged in an activity, follows advice given'; the possible score range was 8–40; $\alpha = 0.88$). A series of exploratory and confirmatory factor analyses provided support for a two-factor structure, accounting for 55.87% of the total variance (Marchesini & Nota 2001; Nota *et al.* 2002). Corresponding reliability estimates for the present study were 0.87 and 0.88.

Setting

Participants residing in the least restrictive environments lived in 'group housing' assisted by socio-educative personnel. In these 2- to 3-person-unit residential settings, people with ID received support

in managing their living environment and with social and work inclusion. Participants residing in institutions and those attending semi-residential day centres for at least 8 h a day spent most of their time in large, congregate settings that were relatively isolated from the surrounding community. These environments had many building adaptations as well as a relative lack of systematic approaches to goal planning and structured activities. Generally, these services did not usually include individualized programmes, but organized a number of group activities, such as occupational and recreational activities.

Procedure and analyses

All measures were completed by healthcare professionals and social workers who had known the participants for at least 1 year. The medical directors of the services and institutions involved in the study asked staff members to complete the questionnaires to update the clinical records of the person for whom they were providing supports. Each staff person responded to questionnaires pertaining to only one consumer after informed consent was obtained for that person or his/her family. An individualized report was written for each participant, indicating his/her strengths and limitations as well as suggestions for intervention. The report was then given to the staff member who had conducted the evaluation. Because the data collection occurred in a collaborative effort between the researchers and the service providers, the response rate was very high. There were missing data for only one participant, whose data were subsequently dropped from the study.

As preliminary analyses, we conducted an ANOVA to verify whether self-determination, social abilities and QoL scores differed as a function of intellectual impairment. The Pearson product-moment correlation was used to examine any relationships among self-determination, social abilities, QoL and IQ scores.

Discriminant function analysis was used to examine the degree to which IQ score, age, self-determination and social abilities predicted membership in groups that were formed based on living arrangement, and on QoL status (high vs. low). Discriminant function analysis was also conducted

to verify membership in high or low self-determination groups. Predictor variables for this analysis were age, IQ score and social abilities. To proceed with these analyses, a single self-determination and QoL score was calculated for each participant by calculating the scale means each participant received for each factor. Based on the medians of these new distributions, participants were then subdivided into two groups: (1) self-determination: participants with the highest degree of self-determination (below the median) and participants with lowest degree of self-determination (above the median); and (2) QoL: high QoL (above the median) and low QoL (below the median). The discriminant function analysis can be useful for both data interpretation and classification. In the first case, the aim is to discriminate between groups on the basis of specific characteristics; in the second case, the aim is to assign individuals to groups. Our study focused on the first application, i.e. data interpretation and identifying how groups varied according to a set of predictor variables.

We also conducted a series of regression analyses with self-determination subscale scores as dependent variables. A MANOVA was then conducted to examine age level (16–25, 26–35, 36–45 and 46–65 years) and gender as independent variables and with degree of self-determination as the dependent variable.

Results

Preliminary analyses

Significant differences emerged on scores pertaining to self-determination as a function of level of ID: *self-determination in various daily activities* ($F_{2,138} = 32.40, P = 0.001$), *self-determination in activities and commitments* ($F_{2,138} = 13.12, P = 0.001$), and *self-determination in choices and desires* ($F_{2,138} = 3.18, P = 0.04$). Concerning QoL, differences emerged for *satisfaction for potential to benefit from opportunities for social interaction* ($F_{2,87} = 5.09, P = 0.008$). Last, concerning social abilities, significant differences were found for both factors: *basic social abilities* ($F_{2,138} = 9.09, P = 0.001$) and *abilities of interaction management* ($F_{2,138} = 11.08, P = 0.001$). Participants with the most severe intellectual impairment showed the lowest levels of self-determination, QoL and social abilities.

Statistically significant correlations were found among IQ scores, self-determination, social abilities and QoL (Table 1). In particular, the lower participants' scores on self-determination in their daily activities, emotional expression and decision making – indicators of higher self-determination, the higher their social abilities. Participants also seemed to experience a greater degree of satisfaction in several aspects of their existence. Self-determination in choosing activities was associated with potential for experiencing situations of social integration. IQ

Measures	BSA	AIM	SQSR	SOSI	SCAV	IQ
SDDA	-0.29**	-0.22*	-0.28**	-0.52**	-0.36**	-0.42**
SDEO	-0.40**	-0.44**	-0.45**	-0.43**	-0.52**	-0.16
SDAC	-0.08	-0.13	-0.08	-0.22*	-0.10	-0.23**
SDCD	-0.25**	-0.22*	-0.37**	-0.44**	-0.39**	-0.18**
IQ	0.33**	0.40**	0.06	0.19	0.05	

Table 1 Correlation among IQ score, self-determination, social abilities and quality of life

$n = 141$ (self-determination, social abilities and IQ score correlations); $n = 90$ (self-determination, social abilities, IQ score and quality of life correlations).

* $P < 0.05$; ** $P < 0.01$.

SDDA, self-determination in various daily activities; SDEO, self-determination in expressing emotions and opinions; SDAC, self-determination in activities and commitments; SDCD, self-determination in own choices and desires; BSA, basic social abilities; AIM, abilities of interaction management; SQSR, satisfaction for quality of service received; SOSI, satisfaction for opportunities for social integration; SCAV, satisfaction for characteristics of environments visited; IQ, IQ score.

scores significantly correlated with self-determination in daily activities, commitments and decisions, and with social abilities.

Regarding our first questions pertaining to the contribution of self-determination and living arrangement, two discriminant functions were calculated with a combined $\chi^2 = 185.16$, $P < 0.001$. After removal of the first function, a strong association between groups and predictors remained ($\chi^2 = 37.50$, $P < 0.001$). The two discriminant functions accounted for 86% and 14%, respectively, of between-group variability. As shown in Fig. 1, the

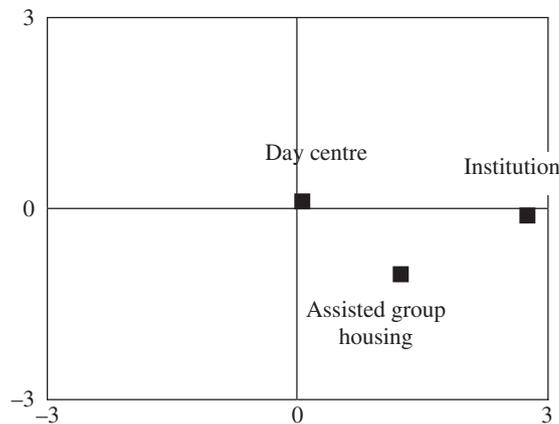


Figure 1 Group centroid plot from discriminant function analysis.

first discriminant function separated individuals living in institutions from those attending day centres, with individuals residing in assisted group housing falling between these two groups. The second discriminant function discriminated individuals living in assisted group housing from the other two groups. As shown in Table 2, the loading matrix of correlations between predictors and discriminant functions suggested that the best predictors for distinguishing individuals living in institutions from those attending day centres were, in order, *self-determination in activities and commitments*, *self-determination in various daily activities* and age. People attending day centres were younger, showed greater autonomy in choosing their activities and had a greater degree of self-determination in their daily activities (see Table 2). Two predictors – *self-determination in various daily activities* and *self-determination in expressing emotions and opinions* – had loadings of over 0.50 on the second discriminant function, which separated people living in assisted group housing from those living in institutions and attending day centres. The assisted group housing group showed a greater degree of self-determination in their daily activities, such as when to get up in the morning, what to wear, etc., as well as in their manifestation of emotions and moods (see Table 3).

The second set of discriminant function analyses, presented in Tables 4 and 5, examined contributors

Table 2 Means, standard deviations and one-way analyses of predictor variables as a function of living condition

	Institutions		Assisted group housing		Day centres	
	Mean	SD	Mean	SD	Mean	SD
IQ	38.30	13.81	52.54	13.82	44.56	8.78
Age	39.48	10.09	38.41	8.17	29.66	7.80
Self-determination in various daily activities	60.31	18.73	27.00	12.22	38.41	15.45
Self-determination in expressing emotions and opinions	17.95	8.61	11.95	6.52	22.13	6.90
Self-determination in activities and commitments	16.53	3.28	11.25	4.72	8.58	3.53
Self-determination in own choices and desires	13.07	2.87	9.29	3.26	11.70	2.50
Basic social abilities	27.77	8.01	31.70	6.63	28.92	7.73
Abilities of interaction management	25.86	7.35	30.62	5.67	23.88	6.29

$n = 141$.

Table 3 Predictor variables in stepwise discriminant function analysis and function structure matrix

Step	Predictor variable	Variables in discriminant function	Wilks's Λ	Equivalent $F_{2,138}$	Function 1	Function 2
1	Self-determination in activities and commitments	1	0.494	70.546	0.719	0.212
2	Self-determination in expressing emotions and opinions	2	0.371	44.014	-0.158	0.715
3	Self-determination in various daily activities	3	0.300	37.414	0.457	0.888
4	Age	4	0.258	32.752	0.349	-0.302

	Low QoL group		High QoL group	
	Mean	SD	Mean	SD
IQ	43.42	15.68	40.45	14.43
Age	40.30	9.73	37.82	9.32
Self-determination in various daily activities	54.00	22.41	48.22	22.88
Self-determination in expressing emotions and opinions	18.22	8.87	14.02	7.47
Self-determination in activities and commitments	14.80	4.72	15.52	3.92
Self-determination in own choices and desires	12.72	3.56	11.25	3.05
Basic social abilities	26.14	8.04	32.17	6.15
Abilities of interaction management	24.86	7.40	29.97	5.95

Table 4 Means, standard deviations and one-way analyses of predictor variables as a function of quality of life (QoL) group

n = 90.

Table 5 Predictor variables in stepwise discriminant function analysis and function structure matrix

Step	Predictor variable	Variables in discriminant function	Wilks's Λ	Equivalent $F_{1,88}$	Function 1
1	Basic social abilities	1	0.852	15.311	0.797
2	IQ	2	0.785	0.855	-0.118

to QoL scores. Of the eight predictor variables, IQ, age, self-determination scores and social abilities scores, basic social abilities and IQ predicted membership in the high or low QoL group (with higher basic social abilities scores predicting membership in the high QoL group) (canonical discriminant functions: Wilks's $\Lambda = 0.79$, $\chi^2 = 21.04$, $P > 0.001$). In any case, only basic social abilities had loadings of over 0.30 (Tabachnick & Fidell 1989).

Concerning membership in the high or low self-determination group, another set of discriminant function analyses examined the contribution of IQ score, age and social abilities score: only the IQ score predicted membership, with higher IQ scores predicting membership in the high self-determination group (Tables 6 and 7) (canonical discriminant functions: Wilks's $\Lambda = 0.89$, $\chi^2 = 15.89$, $P > 0.001$).

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	High SDE group		Low SDE group	
	Mean	SD	Mean	SD
IQ	47.23	13.07	38.56	11.91
Age	34.81	9.52	36.72	10.57
Basic social abilities	30.18	7.58	27.47	7.78
Abilities of interaction management	26.79	7.46	25.08	6.55

n = 141.**Table 6** Means, standard deviations and one-way analyses of predictor variables as a function of self-determination (SDE) group**Table 7** Predictor variables in stepwise discriminant function analysis and function structure matrix

Step	Predictor variable	Variables in discriminant function	Wilks's Λ	Equivalent $F_{1,139}$	Function I
1	IQ	1	0.892	16.902	1.00

Results from regression analyses are presented in Table 8, and indicated that IQ and basic social abilities were predictive of the subjects' self-determination in various daily activities; these variables accounted for 19% of the variance. Abilities of interaction management were predictive of self-determination in expressing emotions and opinions, and this capacity accounted for 19% of the variance. Basic social abilities were predictive of self-determination in own choices and desires (6% of the variance). The higher the intellectual level and social abilities, the higher people's self-determination is.

Age, IQ, abilities to manage social interactions, and basic social abilities were predictive of the subjects' self-determination in activities and commitments, and these variables accounted for 20% of the variance. In this case, the higher the IQ, the greater the social abilities and the younger the subjects, the more they are considered self-determined as regards self-determination about activities to carry out. These results suggest that social skills contribute substantially, with IQ in particular, to self-determination.

Finally, regarding gender- and age-related differences, multivariate analyses highlighted gender differences (Wilks's $\Lambda = 0.92$, $F_{4,130} = 2.82$, $P = 0.028$). More in detail, univariate analysis yielded signifi-

cant differences in *self-determination in various daily activities* ($F_{1,133} = 4.69$, $P = 0.03$), *self-determination in expressing emotions and opinions* ($F_{1,133} = 9.26$; $P = 0.003$), and *self-determination in activities and commitments* ($F_{1,133} = 4.19$, $P = 0.04$). Across all, women showed a higher degree of self-determination (see Table 9). No significant differences concerning age (Wilks's $\Lambda = 0.91$, $F_{12,344} = 1.10$, $P = 0.36$), nor any interaction effects (Wilks's $\Lambda = 0.94$, $F_{12,344} = 0.68$, $P = 0.77$), were registered.

Conclusions

We investigated the role of individual characteristics, such as IQ, age, on self-determination, social abilities, QoL and residential/day activity status of people with ID. The findings from this study contribute to an emerging knowledge base pertaining to environmental and intraindividual factors that contribute to, or limit, self-determination.

Limitations

Before discussing our findings, it is important to note the limitations of the study. First, self-determination, social abilities and QoL status were

Table 8 Regression analysis (with all subjects)

Predictor variable	B	ESB	β	R ²	ΔR^2
Dependent variable: Self-determination in various daily activities					
Step 1				0.17	
IQ	-0.67	0.12	-0.42*		
Step 2				0.19	0.02
IQ	-0.58	0.13	-0.36*		
Basic social abilities	-0.46	0.22	-0.17*		
Dependent variable: Self-determination in expressing emotions and opinions					
Step 1				0.19*	
Abilities of interaction management	-0.53	0.09	-0.44*		
Dependent variable: Self-determination in activities and commitments					
Step 1				0.05	
Age	0.12	0.04	0.23*		
Step 2				0.10	0.05
Age	0.12	0.04	0.23*		
IQ	-0.08	0.03	-0.22*		
Step 3				0.14	0.04
Age	0.11	0.04	0.21*		
IQ	-0.12	0.03	-0.32*		
Abilities of interaction management	0.18	0.06	0.25*		
Step 4				0.20	0.06
Age	0.08	0.04	0.17*		
IQ	-0.12	0.03	-0.32*		
Abilities of interaction management	0.44	0.09	0.61*		
Basic social abilities	-0.30	0.08	-0.45*		
Dependent variable: Self-determination in own choices and desires					
Step 1				0.06*	
Basic social abilities	-0.10	0.03	-0.25*		

n = 141; * = *P* < 0.05.

determined by proxy reports. Although reporters knew the people they were evaluating, their assessments must necessarily include their own understandings of terminology, including complex constructs like self-determination, and results will almost certainly reflect the stereotypes and biases they hold in relation to these issues pertaining to people with ID. Stancliffe (1999) found that proxy and self-reports on another QoL measure were not significantly different from self-reports, thus justifying the use of a proxy reporting methodologies, but also cautioned that the agreement between proxy and self-reports was less consistent at the individual item level. As such, it is important to remember that differences between these findings and other studies might be a function of the use of proxy reporters.

Second, the study included day centres as a level of residential facility. In Italy, these services are

classified as semi-residential institutions, in part because people attending them engage in a host of activities, such as preparing meals, performing activities of daily living, and performing self-care activities that are associated with residential settings and not employment settings. In other countries, similar facilities may not be classified as residential in nature, and this setting does not provide as unambiguous a distinction in terms of the characteristics of residential settings as would be preferred.

Results from the study confirmed previous findings to a large extent. Statistically significant correlations were found among IQ scores, self-determination, social abilities and QoL. In particular, self-determination in choosing activities was associated with potential for social integration. IQ scores significantly correlated with self-determination in daily activities, commitments and

Age group	Self-determination							
	SDDA		SDEO		SDAC		SDCD	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
16–25 years								
Men	45.38	15.90	20.84	5.47	12.00	4.81	12.15	1.62
Women	41.41	21.78	19.50	10.21	10.16	4.98	11.16	4.30
26–35 years								
Men	50.60	22.80	21.10	6.98	12.53	5.65	12.33	2.70
Women	49.08	24.32	16.25	9.17	12.66	4.59	12.00	3.74
36–45 years								
Men	44.03	19.97	17.38	7.41	13.29	4.52	11.88	2.98
Women	38.25	17.94	15.66	11.57	11.16	6.17	10.91	2.93
46–65 years								
Men	57.14	21.78	20.19	8.57	15.28	4.40	12.85	2.97
Women	34.00	17.58	9.28	5.05	12.28	6.57	10.28	4.57

n = 90.

SDDA, self-determination in various daily activities; SDEO, self-determination in expressing emotions and opinions; SDAC, self-determination in activities and commitments; SDCCD, self-determination in own choices and desires.

decisions, and with social abilities. The correlations between IQ and self-determination and expressing emotions scores ($r = -0.16$) and between self-determination and choices scores ($r = -0.18$) were consistent with correlations between self-determination and IQ scores in other studies, including Wehmeyer & Garner (2003); that is, statistically significant, but not that meaningful in practice. The relationship between the self-determination and various day activities score ($r = -0.42$) did vary from previous such findings. However, this factor is similar in nature to autonomous functioning, for which IQ did contribute significantly in Wehmeyer & Garner (2003). IQ and the number of things one can do independently or autonomously are, undoubtedly, related, and this finding most likely reflects that issue.

We found that significant differences emerged on scores pertaining to self-determination as a function of level of ID. Participants with the most severe intellectual impairment showed the lowest levels of self-determination, QoL and social abilities. This is consistent with other research studies, but should not be interpreted to mean that IQ is destiny. That environment and choice opportunity contribute as well was shown in results indicating that people

attending day centres seem to have a greater degree of self-determination (in terms of choice of activities in which to participate during the day) than people living in institutions and even those living in group housing, a finding that warrants further consideration.

The discriminant function analysis examining contributors to QoL scores found that of the eight predictor variables, only basic social abilities and IQ predicted membership in the high QoL group. This differed from previous findings from Wehmeyer & Schwartz (1998), but that study explicitly controlled for environment. One aspect of the environment that would impact the degree to which self-determination predicted outcomes, including QoL, would be the degree to which a given environment promotes self-determination. Large congregate settings clearly do not. The analysis for contributors to QoL included only participants who lived in institutions or group homes (because, as noted, those data were not available for persons receiving day centre activities). As reported, these two groups were the lowest in their relative self-determination. Wehmeyer & Schwartz's findings do not suggest that IQ is not a contributor to QoL, but that when other factors, including environment and its impact on self-

Table 9 Means and standard deviations for self-determination in men and women in different age groups

determination, are held constant, self-determination becomes more important than IQ. More specifically, the role of choice opportunity has been identified by multiple researchers as a key element in enhanced self-determination and enhanced QoL, a finding replicated in this study. That social abilities contribute to QoL confirms our belief in its relative importance for more positive QoL outcomes.

The discriminant function analyses examining the contribution of IQ score, age and social abilities score to self-determination group found that only the IQ score predicted membership, with higher IQ scores predicting membership in the high self-determination group. These findings differ from that described by Wehmeyer & Garner (2003). We do not believe, however, that these represent diametrically opposed findings. In the Wehmeyer & Garner analysis, only choice opportunity (from among four variables, including IQ score) predicted membership in a high self-determination group. Similarly, a discriminant function analysis of autonomous functioning scores conducted by Wehmeyer & Garner found everything but IQ scores as significant predictors, with higher perceptions of choice opportunity being the most powerful predictor. Choice opportunity was not evaluated in this study. There has been a generally consistent, statistically significant relationship between measured self-determination and IQ scores. This finding supports that general trend.

This study's finding that social abilities were not significant predictors of self-determination group is of interest and, again, leads one to hypothesize the importance of opportunities to make choices and to act in a self-determined manner over factors such as IQ or social skills in promoting self-determination.

Unlike the living contexts examined in this study, age was not a differentiating factor among participants. One might expect that with experience over time, the ability to more autonomously determine one's own life would increase. That increase, however, is a function of experience and opportunity, and not simply aging. People who have experiences and opportunities that foster self-determination will presumably continue to become more self-determined. People who do not have such experiences and opportunities will not become more self-determined. The limited experiences and

opportunities of many people with intellectual and developmental disabilities likely override any age-related effect. Concerning gender, women participants showed a greater degree of self-determination, consistent with earlier research by Wehmeyer and colleagues.

In general, the study replicated findings pertaining to the relative contribution of intelligence to self-determination and QoL, added information about the potential contribution of social abilities, and pointed to the potentially important role of opportunities to make choices as a particularly important aspect of becoming more self-determined, at least in the context of residential settings. Further, the study joins others that document the limiting effect that environments can place on individual attainment of self-determination and QoL.

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