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Health, employment and relationships: correlates of personal wellbeing in young adults with and without a history of childhood language impairment

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Abstract

Objective: We examine the potential associations between self-rated health, employment situation, relationship status and personal wellbeing in young adults with and without a history of language impairment (LI). **Methods:** A total of 172 24-year-olds from the UK participated. Approximately half ($N = 84$) had a history of LI. Personal wellbeing was measured using ratings from three questions from the Office for National Statistics regarding life satisfaction, happiness and life being worthwhile. **Results:** There were similarities between individuals with a history of LI and their age-matched peers in self-rated personal wellbeing. However, regression analyses revealed self-rated health was the most consistent predictor of personal wellbeing for individuals with a history of LI in relation to life satisfaction (21% of variance), happiness (11%) and perceptions that things one does in life

are worthwhile (32%). None of the regression analyses were significant for their peers.

Conclusions: Similarities on ratings of wellbeing by young adults with and without a history of LI can mask heterogeneity and important differences. Young adults with a history of LI are more vulnerable to the effects of health, employment and relationship status on their wellbeing than their peers.

Keywords: wellbeing; self-rated health; employment; relationship status; language impairment; young adulthood

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Introduction

There is increasing interest in understanding what makes individuals happy. In 2011, the United Nations General Assembly passed a resolution inviting member countries to measure the happiness of their people and to use this to help guide their public policies. The first World Happiness Report was thus launched in 2012. There are social and economic reasons why research on personal wellbeing is burgeoning. People's thoughts and feelings about their own personal wellbeing have been found to be associated with levels of functioning intra-personally, for example, engaging with activities such as unpaid work or volunteering (Baker, Cahalin, Gerst, & Burr, 2005). Wellbeing has also been associated with levels of functioning interpersonally and in the workplace, for example, creating meaningful relationships with others (Hatch et al., 2007; Ryan & Deci, 2001). Governments and policymakers recognise that self-rated perceptions of happiness provide meaningful measures of population satisfaction and wellbeing, and that gauging the correlates of happiness, such as self-rated health, can inform the ways in which policies and services can be 'tailored to the things that matter' (Office for National Statistics, 2015). To illustrate, health services aimed at meeting the needs of adolescents and young people are an example of services tailored to the things that matter. For the purposes of large scale population surveys conducted to inform policy, measures are required which are succinct, easy-to-read, intelligible to a wide lay audience, and comparable to international evidence. In respect of personal wellbeing, research and theory have identified life satisfaction, a meaningful life, and positive feelings of contentment or happiness as core constructs (Diener, Scollon, & Lucas, 2003). These can be represented in relatively straightforward items. Indeed, in their review of nineteen large datasets, Dolan,

Peasgood and White (2008) found that the most common measures of personal wellbeing involved happiness and life satisfaction.

In the UK, the Office for National Statistics (ONS) undertakes an Annual Population Survey which includes three questions on personal wellbeing, aimed at eliciting self-reports of life satisfaction, feeling that life is worthwhile, and happiness. The survey is administered regularly to large samples of the population and provides a valuable source of evidence on relative wellbeing among sub-groups based on demographic factors, such as age, marital status, employment status, SES, residential status and location (Bowling, 2011). The 2013 ONS dataset is based on a sample of 165,000 adults aged 16 and over and living in the UK (Office for National Statistics, 2013). This survey found that on a scale from 0 to 10 (where lower scores indicate perception of poorer wellbeing), adults between the ages of 20-24 years in the UK, on average, rate their life satisfaction at 7.5, their happiness at 7.3, and the degree to which the things they do in life are worthwhile at 7.6. These data provide important population benchmark information.

Of course, there are individual differences and this raises the question of what predicts variability in subjective wellbeing. Analyses of large scale studies reveal that one of the strongest predictors of subjective wellbeing, as measured in the Annual Population Survey, is self-reported health; this is followed by employment situation, which also shows a strong effect, and relationship status, which shows a moderate effect (Oguz, Merad, & Snape, 2013). These findings are consistent with work on other measures of wellbeing (e.g., Dolan et al., 2008; Shields & Price, 2005).

Personal wellbeing and language impairment

Language impairment (LI) is a common developmental disorder (Leonard, 2014). Tomblin's classic epidemiological study carried out in the USA revealed LI affects approximately 7% of

children starting school (Tomblin et al., 1997). LI is a common cause of referral to medical services in the preschool and the early school years (Reilly, McKean, Morgan & Wake, 2015). LI is characterised by difficulties in the ability to learn and use language (Conti-Ramsden, St Clair, Pickles & Durkin, 2012). It relates to problems putting words together to formulate sentences (expressive language) and/or understanding the details of what is being said (receptive language). The corresponding DSM5 label is language disorder (American Psychiatric Association, 2013). Risks for LI include male sex (Tallal, Ross, & Curtiss, 1989; Tomblin et al., 1997) and family history (Bishop, North & Donlan, 1996). Although there is variation across countries (Bishop, 2014; Reilly et al., 2014), in the UK to meet diagnostic criteria, children with LI are usually required to fall within the normal range on nonverbal cognitive measures. That is, they do not present with general learning difficulties (intellectual disabilities). In addition, they do not have sensory difficulties such as hearing loss/deafness or have a diagnosis of autism. Although minor associated physical, emotional or behavioural difficulties may be present, the language impairment must be the children's main difficulty.

Although originally thought to be a childhood disorder, there is evidence that LI can be persistent, particularly in those with difficulties in both talking (expressive) and understanding (receptive) language (Conti-Ramsden, Durkin, Simkin & Knox, 2009; Howlin, Mawhood & Rutter, 2000; Johnson, Beitchman & Brownlie, 2010; Law, Boyle, Harris, Harkness & Nye, 2000; Stothard, Snowling, Bishop, Chipchase & Kaplan, 1998). Thus, LI has immediate consequences but also can have long-term ramifications in individuals' lives that go beyond language understanding and use. It is known that individuals with LI face challenges in a number of areas of functioning through childhood and adolescence.

Despite this, studies on outcomes of individuals with a history of LI in young adulthood are few in number. In the UK, Rutter and colleagues (Clegg, Hollis, Mawhood, & Rutter, 2005; Howlin et al., 2000; Mawhood, Howlin, & Rutter, 2000) compared a group of 23-24 year old

men with autism with a similar aged group of men with LI. The group with LI had, in many ways, worse outcomes in terms of social and communication skills than the group with autism, despite the fact that the autism group was more handicapped. Few young men with LI had close friends, were in a relationship or had full-time jobs. It should be noted, though, that the participants in this sample had severe difficulties with receptive language. Community and special school samples have revealed more variation in interpersonal, educational and employment outcomes, but still have identified significant differences between young people with LI and peers. Whitehouse, Watt, Line and Bishop (2009) found adults with a history of LI aged 16-31 had lower levels of education than their peers. Smaller proportions of young people with LI are in employment in young adulthood, a number have employment on a part-time or temporary basis and manual, service and retail sector positions are more common than for their peers (Carroll & Dockrell, 2010, 2012; Conti-Ramsden & Durkin, 2012; Roulstone & McLeod, 2011). In addition to difficulties with friendships (Durkin & Conti-Ramsden, 2007; Mok, Pickles, Durkin, & Conti-Ramsden, 2014), fewer young people with LI report being in a romantic relationship (Wadman, Durkin, & Conti-Ramsden, 2011). In the USA, Records, Tomblin and Freese (1992) followed a small group of 21-year-olds with LI and found similar negative results in terms of educational outcomes and employment. Beitchman and colleagues (Beitchman et al., 2001; Johnson et al., 2010), in their Canadian longitudinal sample of LI individuals, found that at age 19 there were similarities in terms of the proportion of young people in education and or employment but by age 25 the LI group showed poorer occupational outcomes than their peers. In Denmark, a 30-year follow-up study of young people originally diagnosed with LI in childhood also revealed unemployment at rates higher than in the general population (Elbro, Dalby, & Maarbjerg, 2011). To our knowledge, self-reported health in young adulthood in LI has only been studied with the

Canadian longitudinal sample. By age 31, these young adults reported lower levels of perceived health (Beitchman, Brownlie, & Bao, 2014).

Nonetheless, poor outcomes are not inevitable. A number of individuals achieve positive outcomes despite their history of language difficulties. Predicting outcomes, however, has not been an easy task. It has become clear that LI is a heterogeneous condition with considerable variability in virtually all outcomes so far investigated, as well as within-individual variability in functioning across different domains (Conti-Ramsden, 2008). There are those who become skilled and are in full-time employment. There are others for whom successful adaptations in one domain - for example, being in relationship - do not appear to imply positive adaptations in another - for example, being in employment.

Despite the heterogeneity observed in LI and the different trajectories experienced, it is reasonable to assume that, on average, the problems experienced by young people with LI in gaining employment and in establishing relationships mean that they are at risk in terms of at least two of the three factors (self-reported health, employment and relationship status) identified by Oguz et al., (2013) as important predictors of subjective wellbeing. There is scant evidence regarding the first factor, self-reported health, in young adults with LI, though what evidence is available suggests potential lower levels of perceived health (Beitchman et al., 2014).

Yet, surprisingly, not all findings point to poorer subjective outlooks in young people with LI. Studies have reported that they often have similar ratings of wellbeing to those of their non-LI peers (C. J. Johnson et al., 2010; Records et al., 1992). Similarities in ratings across LI and non-LI groups have also been found when studies have focused on satisfaction with educational outcomes alone (Durkin, Simkin, Knox, & Conti-Ramsden, 2009) and when the focus has been specifically on health-related quality of life (Arkkila, Räsänen, Roine, &

Vilkman, 2008; Arkkila et al., 2009; for a review see Feeney, Desha, Ziviani, & Nicholson, 2012).

Why might this be the case? It has been suggested that young people with a history of LI may be satisfied and happier with less (Durkin et al., 2009) or that family support may act as a buffer with respect to wellbeing in the face of adverse outcomes (B. T. Johnson et al., 2010). There is a dearth of research, however, regarding potential individual differences in personal wellbeing which may only be evident when other factors, such as self-rated health, employment and relationship status are examined concurrently.

The current study

Despite disadvantageous prospects with respect to factors known to be associated with lower subjective wellbeing, young people with LI appear on average to attain broadly similar levels of subjective wellbeing to those found in their typical peers. Part of the purpose of the present study was to provide a further test of the generality of this outcome and to examine it more closely using one of the major national instruments, namely the UK ONS Annual Population Survey. Evidence on the subjective wellbeing of young people with LI informs both theory and policy.

As well as between-groups comparisons, we investigate the extent to which known predictors of variability in subjective wellbeing in general population samples can account for variability in wellbeing in young adults, with and without LI. We examine three predictors that have been identified in previous work (Oguz et al., 2013), namely self-rated health, employment situation and relationship status.

Our rationale was as follows. We expected that these variables would predict subjective wellbeing in typically developing adults, such that those with lower self-rated health, poorer

employment situations, and without a current romantic relationship would be likely to report lower subjective wellbeing. This is consistent with accounts of the influences on wellbeing that attribute causality to intra-individual factors such as physical and mental health (McCloughen, Foster, Huws-Thomas, & Delgado, 2012), autonomy and goal achievement (Diener et al., 2003; Saab & Klinger, 2010) and to social factors such as interpersonal support and participation in meaningful networks (Aminzadeh et al., 2013; B. T. Johnson et al., 2010). However, while there is extensive evidence of such effects (Cole, Daly, & Mak, 2009; Dolan et al., 2008; Oguz et al., 2013), it is also recognized that many other variables intervene to determine how they impact on subjective wellbeing. For example, different individuals may make different appraisals of the same situation; individuals vary in terms of their coping resources and resilience, their emotional self-regulation, and their selection of compensatory strategies (Diener et al., 2003). Thus, for the general population, life may well present difficulties that cause distress, and this should in turn impact on subjective wellbeing, but the effects may be mitigated to some extent because people have myriad ways of adapting to their circumstances (B. T. Johnson et al., 2010).

We expected the same overall direction of findings in participants with LI (poorer health, employment and relationships predict lower subjective wellbeing), but we anticipated that the relationship should be stronger in these participants. Our reasoning was that adversities such as unemployment, poor physical health or lack of meaningful relationships are likely to induce negative psychological consequences, irrespective of the presence of LI, but that individuals with a developmental disorder may have lower (though not necessarily zero) capacity for self-management in the face of adversity than do their typical peers. In many small to major ways, life is more difficult for people with LI. Throughout childhood and adolescence, for example, those with LI tend to suffer higher than average levels of social, behavioural and emotional difficulties, such as lack of friendships or feeling anxious (St

Clair, Pickles, Durkin, & Conti-Ramsden, 2011). Hence, the enduring burden of communicative impairment and its developmental sequelae may render at least some people with LI more vulnerable to adverse circumstances or events, and less well equipped to manage them, than are their typically developing peers. On this basis, a stronger relationship could be expected between potential stressors and subjective wellbeing in those with LI than in age-matched peers. To our knowledge, this is the first study to examine potential associations between factors that have been found to matter most in personal wellbeing in young adults with a history of LI.

Method

Ethics

The study reported here received ethical approval from The University of Manchester, UK. All participants provided informed written consent.

Participants

Participants with a history of language impairment (LI).

In the current investigation, there were 84 young adults with a history of LI, who were originally part of a wider study: the Manchester Language Study, a large-scale longitudinal research programme that began when the children with LI were 7 years of age (Conti-Ramsden & Botting, 1999; Conti-Ramsden, Crutchley, & Botting, 1997). The initial cohort of 242 children were recruited from 118 language units across England and represented a random sample of 50% of all 7-year olds attending language units for at least half of the school week. Language units are specialized classes for children who have been identified with LI, i.e., primary language difficulties. Language unit placements are offered to children who would find it difficult to cope in mainstream education even with support. These

children are deemed to need a structured small group setting with intensive language input that usually involves both teachers and speech and language therapists.

Individuals were contacted again at ages 8 (N = 232), 11 (N = 200), 14 (N = 113), 16 (N = 139), and 24 (N=84). The attrition observed was partly due to funding constraints at follow-up stages of the study. The current sample, 35% of the original cohort, consisted of 56 (67%) males and 28 (33%) females, ranging in age between 23.36 years and 25.82 years (M = 24.44; SD = 0.65 years). There were no significant differences in receptive language (t(240)=-1.13, p=.261), expressive language (t(229)=-0.45, p=.654), and nonverbal IQ (t(231)=-0.60, p=.547) standard scores at age 7 between those who participated at age 24 and those who did not. At age 24 years, the gender distribution in the LI group (67% male; 33% female) was not significantly different from the gender distribution of the age matched peer group (56% male; 44% female, see below), χ^2(1, N=172)=2.18, p=.140. Although the gender distribution was not significantly different, it is worth noting that risks of LI include male sex (see introduction). Thus it is easier to recruit male LI participants.

Age-matched peers (AMP).

The comparison group consisted of 88 age-matched peers (AMP) who had no history of special educational needs or speech and language therapy provision. Forty-nine (56%) were males and 39 (44%) were females, ranging in age between 22.28 years and 25.99 years (M = 24.09; SD = 0.90 years). Sixty-six of these young adults were recruited at age 16 years as part of the Manchester Language Study and 22 young adults were recruited for the current investigation. Participants at age 16 came from the same schools as the participants with a history of LI as well as additional targeted schools. These participants were sampled from selected demographic areas in order to ensure AMPs came from broad background and wide geographical areas, similar to participants with a history of LI. The 22 young adults were

recruited to match the original sample in terms of age and socioeconomic status as measured by personal income. There were no significant differences in any of the responses to the wellbeing questions (life satisfaction, happiness and life worthwhile) between the 22 AMP young adults that were recruited for the current investigation as compared to the AMP adults who had participated in the Manchester Language Study before (all *p*s > .05).The LI and the AMP groups did not differ on household income at age 16 years ($\chi^2(10, N= 145)=9.32$, $p=.501$) nor personal income at age 24 years ($\chi^2(5, N=131)=7.38$, $p=.194$).

Materials

Self-rated personal wellbeing

Personal wellbeing interview. The instrument used in the interview consisted of three questions from the Office of National Statistics (ONS) Annual Population Survey that includes questions on personal wellbeing and provides national data (Personal Wellbeing in the UK Survey, ONS, 2013). The questions measured life satisfaction ("Overall, how satisfied are you with your life nowadays?"), happiness ("Overall, how happy did you feel yesterday?") and life being worthwhile ("Overall, to what extent do you feel that the things you do in your life are worthwhile?"). Participants responded to each of the three questions on a scale of 0 to 10; lower scores indicated a perception of poorer wellbeing. The three questions had good internal consistency and reliability, Cronbach's alpha = .82 and .76 for the LI and AMP groups respectively. Thus, a wellbeing composite scale was created which was the sum score of the three wellbeing items. For comparative purposes, the ONS (2013) 20-24 age-band national norms were used.

Factors examined: health, employment and relationships status interview

Self-rated health. Participants were asked "How is your health in general?" and responded on a 5-point scale: very poor (1), poor (2), fair (3), good (4), very good (5). Very poor, poor, and fair were recoded to 0 and good and very good were recoded to 1 to create a binary variable of self-rated health.

Employment situation. Information on employment/education situation was obtained. Participants were asked "Which of the following best describes your current situation?" and responded to one of the following: (1) unemployed, (2) in full-time paid employment, (3) in part-time paid employment, (4) self-employed, or (5) full-time student. Responses 1 to 5 were combined to create a binary variable labelled for ease as "in employment" (responses 2, 4 and 5) and "not in employment" (responses 1 and 3).

Relationship status. Two questions about relationships were asked. The first was: "What is your legal marital partnership status?" Participants responded either "never married and never registered in a same-sex civil partnership" or "married / in a registered same-sex civil partnership". Given the age of the participants, the likelihood of individuals being married/registered in same-sex civil partnerships was low. The second question was: "Are you currently in a relationship?" Participants could choose from "Yes, living with partner", "Yes, but not living with partner", or "No". Both yes options were combined to create a binary variable: in a relationship versus not in a relationship. Individuals who were married/registered in same-sex civil partnerships responded "yes" to being in a relationship.

Assessments of language, reading and nonverbal skills.

The Clinical Evaluation of Language Fundamentals (CELF-4^{uk}, Semel, Wiig, & Secord, 2006) was used to assess language ability. Standard scores were calculated using the Word Classes receptive subscale for receptive language and the Formulated Sentences subscale for expressive language. Given the dearth of standardized language tests in adulthood, the CELF-

4 was deemed the best fit assessment for our cohort at 24 years of age (neither group reached ceiling levels on this assessment which is normed up to age 21;11 years). For the age range 17;0-21;11 years, the reliability of the word classes subtest was .88 and of the formulated sentences subtest was .82. Clinical validation studies of the CELF-4 reported in the manual indicate that the test is sensitive to language impairment in children, adolescents and young adults.

The Wechsler Abbreviated Scale of Intelligence (WASI, Wechsler 1999) Performance subscale was administered as a measure of nonverbal IQ and standard scores were calculated. This test has norms for individuals aged 6 to 89 years. The reliability of the Performance IQ scale for the age range 20-24 years is .94. Validity studies of the WASI reported in the manual provide evidence that the test is a valid quick screening measure of intellectual functioning.

The Test of Word Reading Efficiency (TOWRE, Torgesen, Wagner & Rashotte, 1999) was administered as a measure of reading ability. The TOWRE has been normed from age 6 to 24;11 years. Standard scores were calculated using the sight word efficiency subtest. The reliability of this subtest for the older age group was .82 (form A) and .87 (form B). Validity studies of the TOWRE reported in the manual provide evidence that the TOWRE is a valid measure of reading, especially when assessing individuals for whom rate of reading is a potential problem.

Psycholinguistic profiles.

The mean standard scores, standard deviations and LI vs. AMP comparisons on the language, reading and nonverbal measures are presented in Table 1. The AMP participants had mean receptive, expressive and reading scores within the expected range. The participants with a history of LI had significantly lower receptive and expressive language; mean scores fell below 1 *SD* below the mean (< 85). Both groups of young adults had mean nonverbal skills

within the expected range. It should be noted, nonetheless, that the young adults with a history of LI had significantly lower nonverbal IQ scores than their peers, as is often found in research with this population (Leonard, 2014). The mean reading scores for young adults with a history of LI was significantly lower than the mean reading scores for their peers. However, the reading scores indicated that the group with a history of LI had an average reading age of 11-12 years which was judged to be adequate for understanding the interview questions and statements used in this study. In addition, we took additional steps to ensure comprehension (see procedure below).

Table 1 about here.

Procedure

The participants were interviewed face-to-face at their home on the above measures as part of a wider battery to examine adjustment in young adulthood. All the measures reported in this study were thus collected concurrently, including the standardized assessments. Interviews took place in a quiet room, wherever possible with only the participant and a trained researcher present. Basic demographic information was collected and then the standardized assessments were administered in the manner specified by the test manuals. For the interview, the items were read aloud to the participants and the participants were given additional clarification, where needed, although this occurred rarely. Particular care was taken to ensure the participants understood the interview items. The response options were carefully explained and both the items and response options were also presented visually. Participants could respond verbally or by pointing to the response options presented visually.

Statistical Analysis

All statistical analyses were conducted in Stata/SE 13.1 (StataCorp, 2013) and a two-tailed significance level of $p = .05$ was used unless otherwise specified. T-tests were used to compare group

differences in each of the wellbeing questions. Chi-squared tests were used to compare group differences in health (very poor/poor /fair or good/very good), employment (not in employment or in employment) and relationships (not in relationship or in relationship). Linear regression models were then fitted with health, employment, and relationship status as predictors and each of the wellbeing items and the wellbeing composite as outcome variables in separate models. Given the group differences observed in the comparative analyses, the regression models were run separately for LI and AMP.

There were small levels of missing data with regard to a) the participants' profile of abilities: expressive language (LI=full-data, AMP=2 missing), receptive language and nonverbal IQ (LI=1 and AMP=2 missing) and reading (LI=5 and AMP=17 missing); b) the personal wellbeing interview (LI=2 and AMP=1 missing); and c) the correlates examined: employment situation (LI=11 and AMP=4 missing), relationship status (LI=3 and AMP=4 missing), and for self-reported health there was no missing data in either group. Missing data were treated as such and only the available data were analyzed.

Results

Group comparisons

There were no group differences on the three questions on wellbeing. These comparisons, along with age-specific national norms provided by the ONS Survey (2013), are shown in Table 2. Using one-sample t-tests we found that the groups did not differ from national norms for each of the wellbeing questions (Life Satisfaction: LI $t(81)=-0.43$, $p=.671$, $d=-0.05$ AMP: $t(86)=0.04$, $p=.972$, $d=0.00$, Happiness: LI $t(81)=0.49$, $p=.625$, $d=0.05$ AMP: $t(86)=-0.81$, $p=.422$ $d=-0.09$., Life Worthwhile: LI $t(81)=-1.62$, $p=.109$, $d=-0.18$ AMP: $t(86)=-0.57$, $p=.573$, $d=-0.06$). As illustrated in Figure 1, large differences in the psycholinguistic profiles of young people in the LI versus AMP groups were not evident in their responses to the wellbeing questions.

Table 2 and Figure 1 about here.

There were also no group differences in ratings of health. The majority of young people reported having good/very good health (LI 77%, AMP 84%; $\chi^2(1, N = 172) = 1.25$, p=.264). There were, however, group differences in employment and relationship status. A significantly lower percentage of young people with a history of LI were in full-time employment or education (LI 52%, AMP 73%, $\chi^2(1, N = 157) = 7.09$, p=.008) or were in a relationship (LI 43%, AMP 67%, $\chi^2(1, N = 165) = 9.17$, p=.002). As expected, a very small proportion of young people were married at 24 years of age (LI 4%, AMP 5%).

Predictors of wellbeing

As shown in Table 3, LI participants who rated their health as good/very good also rated their wellbeing significantly higher than those who rated their health as very poor/poor/fair. In the same vein, LI participants who were in employment or in a relationship rated their wellbeing significantly higher (life satisfaction, happiness, and life worthwhile) than those who were not. For the AMP group, those who rated their health as good/very good also rated their wellbeing significantly higher (but only in terms of life satisfaction, and not happiness or life worthwhile) than those who rated their health as very poor/poor/fair. No significant differences were observed in the AMP group between employment and relationship status and the wellbeing variables examined.

Table 3 about here.

The findings for the LI group were investigated further using multiple regression models that afforded examination of multiple predictors of wellbeing simultaneously (health, employment, relationship). Table 4 presents the models for the LI group. All models were significant, explaining between 11 to 32% of the LI sample variance. For the AMPs, none of

the models examining multiple predictors were significant (*Life Satisfaction: F*(3,75)=2.70, *p*=.052., *Happiness: F*(3,75)=0.91, *p*=.438., *Life Worthwhile*, *F*(3,75)=0.60, *p*=.616., *Wellbeing Composite: F*(3,76)=0.66, *p*=.580). The models for the AMPs are presented in Table S1 (supplementary materials).

Table 4 about here.

Discussion

Language impairment is one of the most common of childhood disabilities and its consequences extend into adulthood. To the best of our knowledge, this is the first study of the relationship between LI and subjective wellbeing. On first sight, the findings appear rather positive. The ratings of young adults with a history of LI were in line with the figures obtained for young adults aged 20-24 years from a large national survey carried out in the UK at the same time as this investigation (ONS, 2013). These findings are consistent with previous research carried out in Canada and the USA (C. J. Johnson et al., 2010; Records et al., 1992). Young adults with a history of LI provide similar self-ratings of their wellbeing to those of their peers without histories of LI.

Closer examination, however, reveals that young adults with LI are more likely to be dealing with life challenges that are known to impinge on personal wellbeing. In this investigation these included individuals' perceptions of their own health, their employment situation and their relationship status. We found that approximately one third of young adults with LI rated their health as low (very poor, poor, fair) compared to 16% of peers. We also found that larger proportions of young adults with a history of LI were neither in employment nor education and were not in a relationship (Carroll & Dockrell, 2010, 2012; Howlin et al., 2000; Wadman et al., 2011).

The assumption has been that the relationship between young adults' ratings of their own health, employment situation and relationship status and their wellbeing are similar for those with and without LI. The present findings qualify this assumption. Similar relationships were the case for self-rated health (life satisfaction). But there was evidence to the contrary for self-rated health in terms of happiness and life worthwhile, employment and relationship status. This is in line with expectations based on general population studies whereby the strongest predictor of subjective wellbeing is self-reported health but it is contrary to expectations based on general population studies that have also found strong to moderate effects in relation to employment and relationship status (Dolan et al., 2008; Oguz et al., 2013; Shields & Price, 2005). It should be noted, however, that our sample was young and those in the AMP group enjoyed predominantly good health, education/employment status, and were in relationships. At this stage of the lifecourse, the impact of difficulties in these contexts, for the minority of AMP individuals who experienced them, may be mitigated by other positive features of young adulthood and by compensatory strategies.

For individuals with a history of LI there were significant differences in all the measures of personal wellbeing between those who had had high versus low self-reported health, were/were-not in employment and were/were-not in a relationship. Specifically, the group with LI with higher self-rated health had significantly higher life satisfaction, higher ratings of happiness and higher ratings of the degree to which what one does in life is worthwhile, with large effect sizes being observed. Employment situation also played a role in the personal wellbeing of individuals with a history of LI. Those who were not in employment or were working part-time rated their personal wellbeing significantly lower than those who had a full-time paid occupation or were in full-time education. This pattern was also evident for those who were in a relationship versus those who were not. Medium effect sizes were observed for both employment and relationship status for individuals with a history of LI.

Using regression modelling, we found that for young adults with a history of LI, self-rated health was the most consistent predictor across the measures of personal wellbeing used in this investigation. At the positive end of the continuum, individuals with a history of LI who rate their health as good/very good rate their wellbeing high. We suggest that these individuals' self-ratings reflect a degree of optimism about their health and wellbeing (Durkin et al., 2009) and/or a supportive environment which is likely to include employment and/or an established personal relationship (B. T. Johnson et al., 2010; C. J. Johnson et al., 2010). These potential explanations are in need of empirical confirmation. Further research is needed to better understand the nature of personal wellbeing in individuals with a history of LI.

Overall, the results for the LI group are consistent with our expectations that these individuals' sense of wellbeing would be affected more by adversities than would be the case for young adults without LI. The group means on measures of personal wellbeing do not differ significantly but the impact of predictors is much more marked within the LI group. Like other young people, those with LI need access to networks of support, such as friendships (B. T. Johnson et al., 2010; Viner et al. 2012; Wrzus, Hänel, Wagner, & Neyer, 2013) but, in contrast to many of their peers, they may not always have the same level of internal resources to achieve this. These findings point to a need for theoretical effort to explicate the ways in which a disability such as LI accentuate the impact of risk factors and, correspondingly, they inform practical interventions aimed at detecting and enhancing subjective wellbeing as these individuals deal with the tasks of transition to adulthood.

Limitations

Although the present findings bear out theoretical predictions of greater vulnerability of perceptions of personal wellbeing to stressors within the LI group, one limitation of the study

is that we do not have direct measures of presumed mediators or moderators. For example, even in those facing health challenges or poor employment, mean wellbeing ratings were generally positive. This suggests that some participants were able to adapt to their circumstances, perhaps by means of positive cognitive appraisals or internal resources of resilience (cf. Diener et al. 2003). It is also possible that supportive social contexts (family members, close friends) may make a considerable difference to how young adults perceive their wellbeing when times are tough. Future research could address these possibilities with the appropriate measures of coping strategies, emotional self-regulation, and social support.

The study was cross-sectional. It would be desirable to supplement the present findings with evidence from a longitudinal (prospective) design. Recent data, based on adult samples, indicate a reciprocal relationship over time between wellbeing (mental health) and social connectedness (Ding, Berry, & O'Brien, 2015) and it is open to empirical test whether the barriers to social connectedness that ensue from LI impact also on subjective wellbeing in this population.

The AMP group included a subset of participants who had experience of participating in research and a smaller subset who had not had such experiences; however, there were no indications of significant differences between these subsets of typically developing participants.

The investigation made use of self-reported health rather than objective measures. The self-reported health scale was limited, comprising of a general question about overall health. Future research could usefully examine whether other health-related issues are pertinent to individuals with LI in young adulthood. For example, do young adults with LI seek more or less medical advice than peers? Do they make more or less use of services related to mental health?

Conclusions

This investigation provides the first report of associations between ratings of health, employment situation, relationship status and personal wellbeing in young adults with a history of childhood LI. Similarities across groups on ratings of personal wellbeing, although informative, can mask heterogeneity and important differences which are revealed only when personal wellbeing is examined in the context of other key variables. Self-reported health was significantly associated with personal wellbeing for young adults with a history of LI and their same age peers. Employment situation and relationship status, in contrast, was significantly associated with personal wellbeing only for young adults with a history of LI. These results point to the need to develop more complex theoretical models in the study of LI and personal wellbeing in young adulthood.

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Table 1

Psycholinguistic Profiles for the Two Groups of Participants

	Group					
	LI	AMP	*t*	*df*	Mean Difference [95 % *CI*]	Cohen's *d*
Receptive Language	83.51 (18.60)	106.22 (8.94)	10.17***	168	22.71 [18.30, 27.11]	1.56
Expressive Language	81.56 (18.93)	105.64 (12.07)	9.89***	167	24.07 [19.26, 28.88]	1.52
Nonverbal IQ	98.80 (15.80)	111.93 (10.28)	6.43***	167	13.14 [9.10, 17.17]	0.99
Reading	79.56 (9.78)	90.92 (10.69)	6.79***	148	11.36 [8.05, 14.66]	1.11

*** < .001 Note: All scores are standard scores (means and in brackets standard deviations).

Table 2

Group Comparisons on Wellbeing

	Group						
	LI Mean (*SD*)	AMP Mean (*SD*)	*t*	*df*	Mean Difference [95% *CI*]	Cohen's *d*	National Norms
Life Satisfaction	7.40 (2.07)	7.50 (1.50)	-0.37	167	-0.10 [-0.65, 0.44]	-0.06	7.50 (7.50, 7.60)
Happiness	7.42 (2.34)	7.10 (2.27)	0.91	167	0.32 [-0.38, 1.02]	0.14	7.30 (7.20, 7.30)
Life Worthwhile	7.30 (2.21)	7.61 (1.49)	-1.05	167	-0.30 [-0.87, 0.26]	-0.16	7.60 (7.50, 7.60)

Note: National Norms from the Office for National Statistics (2013) based on 20-24 years age band. Lower & Upper Limit in parentheses. Personal Well-being in the UK, 2012/13.

Table 3

Group Wellbeing Comparisons in Relation to Health, Employment, and Relationships.

	LI					AMP				
	Mean (*SD*)	Mean Diff [95 %*CI*]	*t*	*df*	Cohen's *d*	Mean (*SD*)	Mean Diff [95 %*CI*]	*t*	*df*	Cohen's *d*
Self-rated Health										
Life Satisfaction	5.89(2.60)	-1.96 [-2.8]	-3.92***	80	-1.03	6.64(2.16)	-1.03 [-1.8]	-2.41*	85	-0.70
Fair/Poor/Very Poor	7.85(1.65)					7.67(1.29)				
Good/Very Good										

		2.96, -0.97]					7, -0.18]			
Happiness										
Fair/Poor/Very Poor	6.26(2.57)	-1.51 [-2.69, -0.33]	-2.55*	80	-0.67	6.35(2.90)	-0.89 [-2.20, 0.42]	-1.35	85	-0.39
Good/Very Good	7.78(2.16)					7.25(2.13)				

Life Worthwhile	5.37(2.48)	-2.52[-3.53, -1.51]	-4.95***	80	-1.30	7.14(2.17)	-0.55[-1.42, 0.31]	-1.27	85	-0.37
Fair/Poor/Very Poor	7.89(1.76)					7.70(1.33)				
Good/Very Good										
Wellbeing Composite										
Not in Relationship	17.53 (6.85)	-5.27[-8.	-3.27**	82	-0.85	20.14(6.49)	-2.16[-4.99, 0.6	-1.52	86	-0.44
In Relationship	22.80 (5.99)					22.31(4.53)				

		4 8 , - 2 . 0 6]					6]			
Employment Situation										
Life Satisfaction	6.71 (2.43)	-	-2.48*	71	-0.58	7.30 (1.84)	-	-0.87	81	-0.21
Not Employed	7.89 (1.57)	1 . 1 8 [-				7.61 (1.28)	0. 3 1[-			
Employed		2 . 1 3 , - 0 . 2 3					1. 0 2, 0. 4 0]			

		]								
Happiness										
Not Employed	6.77 (2.57)	-1.10[-2.18, -0.00]	-2.01*	71	-0.47	7.43(1.78)	0.37[-0.69, 1.42]	-0.70	81	0.17
Employed	7.87 (2.08)					7.07(2.28)				
Life Worthwhile										
Not Employed	6.60 (2.57)	-1.35[-2.37,	-2.70*	71	-0.63	7.35 (1.82)	-0.34[-1.07, 0.4	-0.91	81	-0.22
Employed	7.95 (1.62)					7.68 (1.36)				

		4, -0.35]					0]				
Wellbeing Composite											
Not Employed	20.09 (6.75)	-3.62 [-6.15, -1.10]	-2.87**	71	-0.67	22.09 (4.85)	0.08 [-2.28, 2.46]	0.07		82	0.02
Employed	23.71 (3.74)					22.00 (4.89)					
Relationship Status											

Life Satisfaction	6.89(2.12)	-1.06 [-1.97, -0.14]	-2.30*	77	-0.52	7.11(1.31)	-0.55 [-1.24, 0.14]	-1.58	81	-0.37
Not in Relationship	7.94(1.89)					7.65(1.58)				
In Relationship										
Happiness										
Not in Relationship	6.86(2.52)	-1.19 [-2.23, -0.15]	-2.30*	77	-0.52	7.04(1.73)	-0.00 [-1.06, 1.06]	-0.00	81	-0.00
In Relationship	8.06(1.97)					7.04(2.53)				

		, -0.16]								
Life Worthwhile	6.66(2.51)	-1.34[-2.31, -0.38]	-2.77**	77	-0.63	7.54(1.64)	-0.06[-0.77, 0.64]	-0.18	81	-0.04
Not in Relationship	8.00(1.53)					7.60(1.46)				
In Relationship										
Wellbeing Composite										
Not in Relationsh	19.52(7.29)	-4	-3.19**	79	-0.72	21.68 (3.57)	-0.	-0.19	82	-0.04

ip	24.00(4.52)	.		21.89(5.55)	2
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Note: *<.05 **<.01 ***<.001; LI = Language Impaired; AMP = Age Matched Peers; *SD* = Standard Deviation; Mean Diff = Mean Difference; *CI* = confidence intervals.

Table 4

Regression Models Examining Health, Employment and Relationships as Predictors of Different Aspects of Wellbeing for Individuals with LI

B [95% CI]

SE B

Standardised β

Regression Predicting Life Satisfaction

Independent variables examined:

Health

1.73** [0.63, 2.83]

0.55

0.35

Employment

0.99* [0.09, 1.90]

0.45

0.24

Relationship

0.60 [-0.32, 1.53]

0.46

0.14

Adjusted R^2

0.21

F

7.24^{***}

Regression Predicting Happiness

Independent variables examined:

Health

1.35^{*} [0.03, 2.67]

0.66

0.23

Employment

0.98 [-0.11, 2.07]

0.55

0.21

Relationship

0.68 [-0.43, 1.79]

0.56

0.14

Adjusted R^2

0.11

F

3.97*

Regression Predicting Life Worthwhile

Independent variables examined:

Health

2.37*** [1.30, 3.46]

0.54

0.45

Employment

0.95* [0.06, 1.84]

0.45

0.21

Relationship

0.84 [-0.07, 1.75]

0.46

0.19

Adjusted R^2

0.32

F

11.91***

Regression Predicting Wellbeing Composite

Independent variables examined:

Health

5.46*** [2.67, 8.25]

1.40

0.40

Employment

2.93* [0.61, 5.23]

1.16

0.26

Relationship

2.12 [-0.23, 4.47]

1.18

0.18

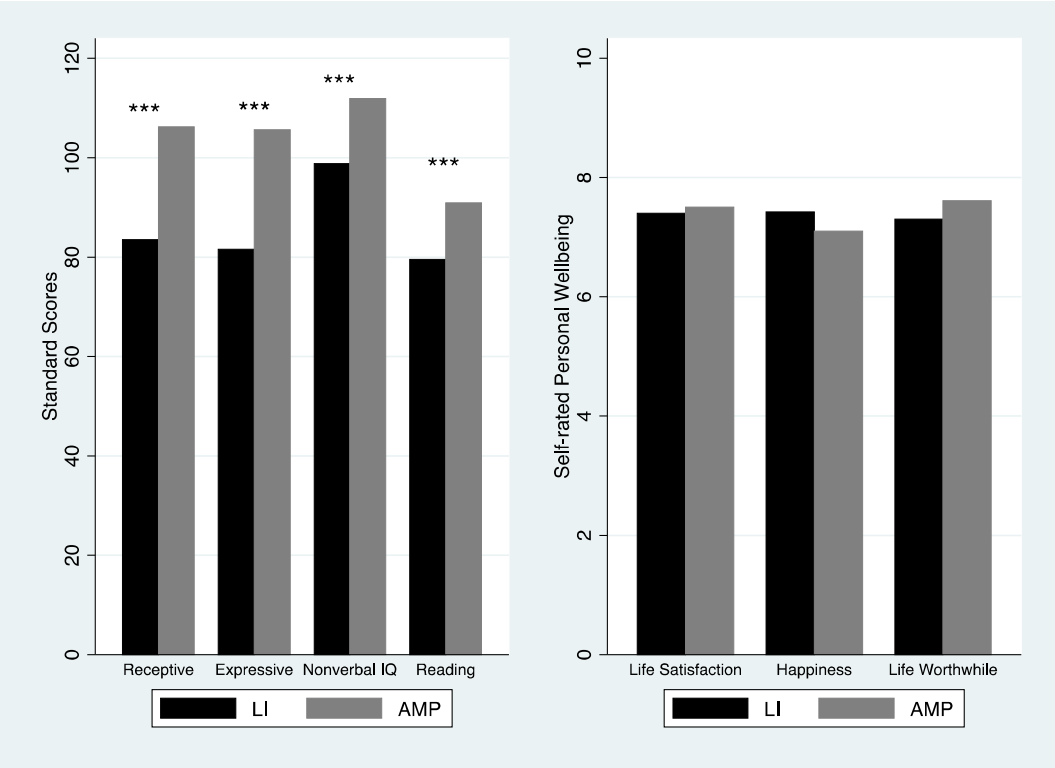
Adjusted R^2

0.31

F
11.04***

Note: *<.05 **<.01 ***<.001; LI = Language Impaired, *CI* = Confidence Intervals

Figure 1. Psycholinguistic Profiles of Young People with LI/AMP and Responses to the Wellbeing Questions



$^{***}p<.001$

Supplementary Materials

Table S1

Regression Models Examining Health, Employment and Relationships as Predictors of Different Aspects of Wellbeing for AMP (comparison group)

	B [95% CI]	*SE B*	Standardised β
Regression Predicting Life Satisfaction			
Independent variables examined:			
Health	0.99* [0.09, 1.88]	0.45	0.24
Employment	0.49 [-0.26, 1.25]	0.38	0.15
Relationship	0.40 [-0.30, 1.09]	0.35	0.13
Adjusted R^2	0.06		
F	2.70		
Regression Predicting Happiness			
Independent variables examined:			
Health	1.10 [-0.27, 2.47]	0.69	0.18
Employment	-0.02 [-1.18, 1.15]	0.59	-0.00
Relationship	0.16 [-0.90, 1.23]	0.54	0.04
Adjusted R^2	0.00		
F	0.91		
Regression Predicting Life Worthwhile			
Independent variables examined:			
Health	0.46 [-0.51, 1.43]	0.49	0.11
Employment	0.45 [-0.37, 1.27]	0.41	0.13
Relationship	-0.06 [-0.82, 0.69]	0.38	-0.02
Adjusted R^2	0.02		
F	0.60		
Regression Predicting Wellbeing Composite			
Independent variables examined:			
Health	2.14 [-0.98, 5.25]	1.57	0.17
Employment	0.59 [-2.06, 3.24]	1.33	0.05
Relationship	0.16 [-2.27, 2.59]	1.22	0.02
Adjusted R^2	0.01		
F	0.66		

Note: *<.05; LI = Language Impaired, *CI* = Confidence Intervals