Personality functioning: the influence of stature

F Ulph, P Betts, J Mulligan, R J Stratford

Background: The Wessex Growth Study has monitored the psychological development of a large cohort of short normal and average height control participants since school entry.

Aims: To examine the effect of stature on their personality functioning now that they are aged 18–20 years.

Methods: This report contains data from 48 short normal and 66 control participants. Mean height SD score at recruitment was: short normals −2.62 SD, controls −0.22 SD. Final height SD score was: short normals −1.86, controls 0.07. The Adolescent to Adult Personality Functioning Assessment (ADAPFA) measures functioning in six domains: education and employment, love relationships, friendships, coping, social contacts, and negotiations.

Results: No significant effect of recruitment height or final height was found on total ADAPFA score or on any of the domain scores. Socioeconomic status significantly affected total score, employment and education, and coping domain scores. Gender had a significant effect on total score, love relationships, coping, and social contacts domain scores. Salient aspects of daily living for this sample were identified from the interviews (prevalence%): consuming alcohol (94%), further education (63%), love relationships (55%), current drug use (29%), experience of violence (28%), parenthood (11%), and unemployment (9%). Stature was not significantly related to behaviour in any of these areas.

Conclusions: Despite previously reported links between short stature and poorer psychosocial adaptation, no evidence was found that stature per se significantly affected the functioning of the participants in these areas as young adults.

METHODS

The participants in the Wessex Growth Study were initially recruited at school entry and have had height and weight measurements taken regularly since. Two previous reports have been made on psychological functioning at age 7–9 years\(^1\) and 11–13 years\(^2\). This paper reports on assessments made when they were 18–20 years of age.

The participants were interviewed using a standard interview schedule—the Adolescent to Adult Personality Functioning Assessment (ADAPFA)—which measures social and interpersonal role performance in six domains: education and employment, love relationships, friendships, coping, social contacts, and negotiations.\(^3\) These are all developmental areas in which it has been shown in the literature that people with short stature may have difficulties. The domains are scored using an age related framework resulting in six domain scores between 0 and 5 with higher scores indicating poorer functioning. The domain scores can be aggregated to form a composite ADAPFA score, with a maximum of 30 and a cut off score of 16 above which functioning is regarded as dysfunctional.\(^4\) The ADAPFA is a development from the Adult Personality Functioning Assessment (APFA) which in research with adults has shown reliability and construct validity. ADAPFA, adapted to focus on the adolescent to adult transition, has been used in a recent follow up of interpersonal and social role performance in young people who experienced cancer in childhood, a study comparable in scope to the present one.

ADAPFA scoring, which provides information on the level of functioning within its six domains, is based on material...
from interviews lasting approximately an hour. Transcripts of interviews carried out in this study were further utilised to afford a more qualitative analysis of the participants’ life experience as emerging adults. This thematic analysis identified a set of discrete “marker” behaviours within each ADAPFA domain, which have been labelled collectively as “aspects of daily living” (see table 1). These relate to education received beyond school, employment status, relationships with a partner, parenthood, drug taking, drinking, and involvement with violence. Simple counts were made of the numbers of participants in each group who confirmed the behaviour during their interview.

Participants
At the beginning of this phase of the research 61% of the original participants were still available to the study (76 short normal (SN) and 94 control (C)). This reduction in sample size was due to attrition and an earlier recruitment of some of the participants into a separate study investigating the psychological effects of GH treatment. This treatment was offered to the very shortest of the total sample (less than 2 SD score for height), but allocation was random—by lot—leaving no systematic effect on the representativeness of the remainder. Of these remaining 170 participants, 114 (48 SN, 66 C) were interviewed (67%). Assessments were made to examine whether these 114 participants were representative of the available sample for interview (see table 2).

At initial recruitment, two distinct groups were selected: short normal participants, with height below the 2nd centile according to the 1990 UK Growth Standards and age and gender matched average height controls. During the course of the Wessex Growth Study there has been variation in participants’ height SD scores in both the short and average height control groups in some cases to such a degree that there is considerable overlap of the two groups’ final height SD scores (fig 1). The ADAPFA scores and the aspects of daily living results were therefore analysed to examine the effect of both recruitment and final height.

The effect of final height was examined by reallocating the participants into three height groups based on their final height centile: <2nd centile (n = 19), 2nd–50th centile (n = 61), and >50th centile (n = 34). Since the middle group (2nd–50th centile) consisted of both initial short normal and average height participants, the outcome variables for these participants were compared, and homogeneity was shown.

Analyses
To control for the potential effects of both gender and socioeconomic status (SES) on personality functioning, group mean differences in the total and six domain ADAPFA scores between height groups were examined using multivariate analysis of covariance (MANCOVA). In this way, differences between the height groups associated with gender (with males typically taller), and with SES (with the more affluent groups typically taller) would be controlled for these two critical independent variables. Gender was established on entry to the study and SES information had previously been supplied by parents. The data in the coping domain when adult height groups were separated reached significance (p = 0.005) on Levenes’ test of homogeneity, indicating...
that the data should not be analysed parametrically. A Kruskal-Wallis H test was used to analyse this data, and this comparison alone was not adjusted for gender and SES). Analyses of variance and χ² tests were used to explore the possible mechanisms for significant class and gender effects on the ADAPFA domains. Patterns of behaviour in the aspects of daily living categories were compared using the χ² test.

RESULTS

ADAPFA

Effect of recruitment height

Table 3 shows the means and standard deviations of the short normal and control group participants’ scores on total and six domains of ADAPFA. After adjusting for gender and SES, there was no significant difference between the groups selected on recruitment height on the ADAPFA derived scores (F = 1.281, df = 7, 104, p = 0.267). Thus recruitment height did not appear to be affecting how the participants functioned in adult roles in society. There were no significant univariate differences between the height groups after the adjustment. ADAPFA total scores, and three of the domain scores produced higher scores for short normal than average height participants, but these differences were slight, and none were significant when compared individually.

As expected, however, the covariates of gender and socioeconomic status both contributed to performance on the ADAPFA. Gender had a significant effect on the total ADAPFA score (F = 7.041, p = 0.009) and also on the love relationships (F = 4.13, p = 0.045), social contact (F = 4.115, p = 0.045), and coping domain scores. In each instance, males scored higher than females, indicating poorer functioning. It was thought that the relation between gender and social contact domain scores may be influenced by involvement in violence, as such behaviour would result in higher scoring and males more frequently reported being involved in violence (males 37%, females 17%, p = 0.064). The relation between involvement in violence and problems in the social contacts domain also approached significance (p = 0.061).

Socioeconomic status had a significant effect on total ADAPFA score (F = 14.304, p = 0.006) and also on the domains of education and employment (F = 11.199, p = 0.001), and coping (p = 0.004). SES had a significant effect on total ADAPFA score (F = 14.304, p < 0.001) and the education and employment domain score (F = 11.199, p = 0.001). Again, though, the mean total ADAPFA score was higher for the shortest adult height group, and domain scores for Friendship and Negotiation were also close to a significant difference when compared individually across the three height groups.

The patterns of significant effects of gender and SES were however the same as those found when comparing the recruitment height groups. Gender had a significant effect on total ADAPFA score (F = 7.7, p = 0.006), love relationships (F = 3.861, p = 0.052), social contacts (F = 4.739, p = 0.039), and coping (p = 0.004). SES had a significant effect on total ADAPFA score (F = 14.304, p < 0.001) and the education and employment domain score (F = 11.199, p = 0.001). Again, though, the mean total ADAPFA score was higher for the shortest adult height group, and domain scores for Friendship and Negotiation were also close to a significant difference when compared individually across the three height groups.

DISCUSSION

In this study, childhood stature and final adult stature have not had a significant effect on the personality functioning of young adults. Though the shortest group has received slightly higher scores in some domains, the young people across the height groups interviewed have generally described similar patterns of behaviour. These results are in line with previous results from the Wessex Growth Study that short normal children have a tendency to be below the average height and that being short is related to lower self-esteem and a higher risk of depression. However, the results of this study indicate that there are no significant differences in personality functioning between groups based on adult height.

Table 3

<table>
<thead>
<tr>
<th>Childhood height</th>
<th>SN (n = 48)</th>
<th>C (n = 66)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADAPFA total score</td>
<td>12.12 (4.44)</td>
<td>11.35 (4.07)</td>
</tr>
<tr>
<td>Education and employment</td>
<td>1.90 (1.12)</td>
<td>1.89 (1.20)</td>
</tr>
<tr>
<td>Love relationships</td>
<td>2.65 (1.60)</td>
<td>2.3 (1.40)</td>
</tr>
<tr>
<td>Friendships</td>
<td>2.17 (1.21)</td>
<td>1.80 (1.13)</td>
</tr>
<tr>
<td>Social contacts</td>
<td>2.04 (1.17)</td>
<td>2.03 (1.18)</td>
</tr>
<tr>
<td>Coping</td>
<td>1.79 (0.85)</td>
<td>1.97 (0.86)</td>
</tr>
<tr>
<td>Negotiations</td>
<td>1.77 (1.22)</td>
<td>1.47 (1.08)</td>
</tr>
</tbody>
</table>

Table 4

<table>
<thead>
<tr>
<th>Adult height</th>
<th>&lt; –2 SD (n = 19)</th>
<th>–2 SD to 0 SD (n = 61)</th>
<th>&gt; 0 SD (n = 34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADAPFA total score</td>
<td>13.05 (4.08)</td>
<td>11.59 (4.13)</td>
<td>10.65 (4.42)</td>
</tr>
<tr>
<td>Education and employment</td>
<td>1.95 (1.08)</td>
<td>2.00 (1.18)</td>
<td>1.68 (0.98)</td>
</tr>
<tr>
<td>Love relationships</td>
<td>2.63 (1.74)</td>
<td>2.36 (1.18)</td>
<td>2.50 (1.40)</td>
</tr>
<tr>
<td>Friendships</td>
<td>2.32 (1.20)</td>
<td>2.00 (0.90)</td>
<td>1.59 (1.05)</td>
</tr>
<tr>
<td>Social contacts</td>
<td>2.32 (1.20)</td>
<td>2.00 (1.06)</td>
<td>1.94 (1.13)</td>
</tr>
<tr>
<td>Coping*</td>
<td>1.79 (0.54)</td>
<td>1.89 (0.90)</td>
<td>1.97 (0.94)</td>
</tr>
<tr>
<td>Negotiations</td>
<td>2.16 (1.30)</td>
<td>1.52 (1.06)</td>
<td>1.41 (1.16)</td>
</tr>
</tbody>
</table>

*This comparison based on a Kruskal-Wallis analysis only, with no adjustment for gender and SES.
Some limitations to the findings of the present study are evident. Firstly, as described in the methods section of the 170 participants who remained available for this phase of the study, only 114 participants could be interviewed. These participants were however found to be representative of the total sample available for this phase of the research.

### Table 6

Comparisons of the percentage of short average and above average height young people reporting behaviours labelled as “aspects of daily living”, based on final adult height

<table>
<thead>
<tr>
<th>Aspects of daily living</th>
<th>Short %</th>
<th>Average %</th>
<th>Above average %</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current drug use</td>
<td>16</td>
<td>31</td>
<td>30</td>
<td>0.70</td>
</tr>
<tr>
<td>Drug frequency</td>
<td>0</td>
<td>22</td>
<td>15</td>
<td>0.67</td>
</tr>
<tr>
<td>Drinking frequently</td>
<td>42</td>
<td>67</td>
<td>72</td>
<td>0.27</td>
</tr>
<tr>
<td>Further education</td>
<td>63</td>
<td>62</td>
<td>70</td>
<td>0.93</td>
</tr>
<tr>
<td>Employment</td>
<td>47</td>
<td>61</td>
<td>67</td>
<td>0.26</td>
</tr>
<tr>
<td>Relationships</td>
<td>42</td>
<td>61</td>
<td>45</td>
<td>0.29</td>
</tr>
<tr>
<td>Parenthood</td>
<td>10</td>
<td>12</td>
<td>6</td>
<td>0.77</td>
</tr>
<tr>
<td>Violence severity</td>
<td>5</td>
<td>12</td>
<td>9</td>
<td>0.72</td>
</tr>
<tr>
<td>Victim</td>
<td>5</td>
<td>12</td>
<td>3</td>
<td>0.33</td>
</tr>
</tbody>
</table>
Secondly, the height SD of a proportion of the short normal participants is now above the original centile band defining short stature. Such a phenomenon has been reported in other studies. Few, however, had a height above the 25th centile and our results are from a sample of young adults who for the majority of their lives have been shorter than their peers, having been recruited at the critical age for treatment decisions.

In summary, no significant differences in personality functioning or aspects of daily living were found which could be attributable to height. This should not be interpreted as indicating that people with short stature will not experience problems in their development, but that they are no more likely to do so than those who are taller. This study is unique as it reports on the effect of both childhood height on adult functioning and the effect of adult height on functioning in the same sample.

Authors’ affiliations
F Ulph, P Betts, J Mulligan, R J Stratford, University of Southampton, UK

REFERENCES
10 Hensley WE, Cooper R. Height and occupational success: a review and critique. Psychol Rep 1987;60:843–9.

ARCHIVIST

Steroids for Kawasaki disease

S

Standard initial treatment for Kawasaki disease in the USA is a single dose of intravenous immunoglobulin (IVIG) 2 g/mg plus aspirin 80–100 mg/kg/day. The role of steroid treatment is controversial. Steroids have been used either as initial therapy or as rescue therapy after failure of IVIG and aspirin. Most studies have documented clinical improvement with steroids but there has been a suggestion that the risk of coronary abnormalities might be increased. A small trial in Boston, Massachusetts of pulsed-dose intravenous methylprednisolone added to IVIG and aspirin as initial treatment has confirmed that clinical resolution is quicker with steroid therapy (Robert P Sundell and colleagues. Journal of Pediatrics 2003;142:611–6, see also editorial, ibid 601–3).

Thirty-nine children were randomised on day 4–10 (median, day 7) of illness to IVIG 2 g/mg over 10 hours plus oral aspirin either with or without pulsed-dose intravenous methylprednisolone. 30 mg/kg prior to the IVIG. The methylprednisolone group had a shorter duration of fever after starting treatment (1.0 vs 1.9 days), shorter hospital stay (1.9 vs 3.3 days), and lower ESR and C-reactive protein at 6 weeks. Coronary artery dimensions after treatment did not differ significantly between the two groups but numbers were small. The authors of this paper call for a large, multicentre trial. An editorialist advises that in the meantime there is not enough evidence to justify the routine use of steroids in primary therapy. For rescue therapy he also considers the evidence to be inadequate but prefers to use a second, or even a third, dose of IVIG if necessary.