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RESEARCH NOTE

REVISED Turning their backs on the 'ladder of success'?

Unexpected responses to the MacArthur Scale of Subjective Social Status

[version 2; peer review: 2 approved]

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Abstract

Subjective social status measures a person's perception of their social class relative to other people and has theoretically and empirically been positively associated with health and wellbeing. A widely used measure of this construct is the MacArthur Scale of Subjective Social Status, which asks people to report their social status by placing themselves on a ladder which represents the social hierarchy of their society or community; the scale has been used with many different populations across many countries. In this research note, we describe two cases where we encountered unexpected reactions to the MacArthur Scale that we believe highlight (a) the salience of relative social status for people's wellbeing in contemporary society and (b) the concomitant sensitivities raised by measuring this subjective experience. We discuss the implications of these observations for future research.

Plain Language Summary

The MacArthur Scale is a widely used research tool where people self-assess their social status in a ladder format. This study explored its suitability in contemporary society and research.

Through an investigation involving pregnant women and young people in Bradford, a group of researchers sought to comprehend discomfort and non-response tendencies exhibited by participants when confronted with the scale.

The study unveiled a significant reluctance, particularly among young

Open Peer Review

Approval Status

	1	2
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version 1 06 Jan 2023	 view	 view
1. Laura Howe , University of Bristol, Bristol, UK		
2. Anna Barford , University of Cambridge, Cambridge, UK		
Kate Brockie , University of Cambridge, Cambridge, UK		
Any reports and responses or comments on the article can be found at the end of the article.		

individuals, prompting the exclusion of the scale from the survey. This hesitance raised questions about the relevance of the scale in contemporary society, emphasizing the need for re-evaluation.

The research team acknowledged the prevalence of social pain associated with subjective social status, highlighting its emotional impact akin to physical pain. Their findings have challenged the conventional use of the MacArthur Scale and called for the development of more acceptable and feasible measures.

While the research has shed light on the limitations of the scale, it has also prompted researchers to reconsider its applicability and encouraged further exploration of subjective social status in diverse populations. This study serves as a valuable reminder for researchers to critically assess their research tools, ensuring they accurately capture the complexities of perceptions and experiences of the evaluated individuals.

Keywords

Subjective status, MacArthur Scale of Subjective Social Status



This article is included in the [Born in Bradford](#) gateway.

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Author roles: **Moss RH:** Conceptualization, Formal Analysis, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Kelly B:** Conceptualization, Data Curation, Formal Analysis, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Bird PK:** Conceptualization, Formal Analysis, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Nutting HZ:** Conceptualization; **Pickett KE:** Conceptualization, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing

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REVISED Amendments from Version 1

The only difference between this version and our earlier version is that we have now added in a new co-author (Hannah Z. Nutting).

Any further responses from the reviewers can be found at the end of the article

Introduction

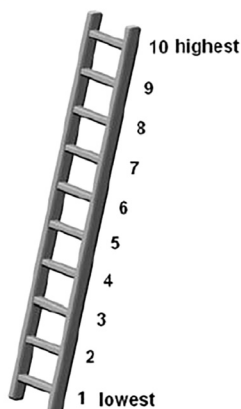
Subjective social status captures a person's perception of their social class relative to other people and has theoretically and empirically been positively associated with health and well-being. Ladders are widely used as a metaphor for social class ranking in both lay discourse and scholarly work¹ and the MacArthur Scale of Subjective Social Status aims to capture people's overall sense of where they stand within the social hierarchy of their society using an image of a ladder with 10 rungs, numbered from 1 at the bottom to 10 at the top (Figure 1). People are asked to place themselves on the ladder according to their social status in relation to others, within their country and/or within their neighbourhood or community. The scale was developed by Adler *et al.*,² within the Research Network on Socioeconomic Status and Health, supported by the MacArthur Foundation from 1996 to 2009. The English language version of the scale gives descriptions of the social status of people at the top of the ladder (these people are the 'best off' - they 'have the most money, the most education and the best jobs') and at the bottom (these people are the 'worst off' - they 'have the least money, least education and the worst jobs or no job'). Respondents are asked to place an 'X' on the rung that best represents where they think they stand on the ladder. When used with young people, in addition to being asked to rank themselves within their society, they are also asked to rank themselves on a ladder that represents the social hierarchy within their school.

Think of this ladder as showing where people stand in your neighbourhood.

By your neighbourhood, I mean within about a mile or 20 minute walk of your home.

At the top of the ladder are people who are the best off- those who have the most money, the best education, and the most respected jobs. At the bottom of the ladder are the people who are the worst off- who have the least money, least education and the least respected job or no job.

The higher up you are on this ladder, the closer you are to the people at the top; the lower you are, the closer you are to the bottom.



Where would you place yourself on the ladder in relation to other people in your neighbourhood? Please tick the box for the rung where you think you stand at this time in your life relative to other people in your neighbourhood.

Figure 1. A copy of the MacArthur Scale used within the baseline BiBBS (Born in Bradford's Better Start) cohort survey. This question asks about subjective social status in relation to other people in your neighbourhood.

The MacArthur Scale has been widely used in epidemiological and public health research and is robustly associated with health outcomes. Subjective social status is associated with health similarly to objective measures, such as education, occupational prestige and income, and it has therefore been viewed as a useful proxy for objective social status in situations where study populations might not know or wish to report their incomes. In addition, it has also been shown to be associated with health after adjusting for objective measures, supporting the theory that subjective social status is a concept of value in itself for the understanding of population health and wellbeing^{3,4}. There is substantial literature attesting to the validity and reliability of the MacArthur Scale and it has been translated into several languages. To our knowledge, there are no other measures of subjective social status in general use in population health research.

The aetiological roles of objective vs. subjective measures of social status, and underlying theories about causal pathways within the social determinants of health framework, continue to be researched (see for example 5) and are matters of debate. However, in this research note we report an issue encountered in our contemporary research: how people respond to being asked to report their subjective social status when presented with the MacArthur Scale of Subjective Social Status in two separate studies and discuss what their responses mean for health research.

Responses to proposed use of the MacArthur Scale of Subjective Social Status in a contemporary cohort study of children and young adults

Ethics

Ethical approval for Age of Wonder, including the co-production process, has been granted by NHS Leeds Bradford Research Ethics committee (Approval number ref: 21/YH/0261, date 22.12.21). Regulatory approval has been granted by the Health Research Authority.

Written informed consent for publication of the participants' details was obtained from the participants themselves. For reference, please refer to the following reference: Dickerson J, Bird PK, McEachan RR, Pickett KE, Waiblinger D, Uphoff E, Mason D, Bryant M, Bywater T, Bowyer-Crane C, Sahota P, Small N, Howell M, Thornton G, Astin M, Lawlor DA, Wright J. Born in Bradford's Better Start: an experimental birth cohort study to evaluate the impact of early life interventions. BMC Public Health. 2016 Aug 4;15(1): 711. doi: 10.1186/s12889-016-3318-0. PMID: 27488369; PMCID: PMC4996273. The Age of Wonder qualitative protocol can be found here for reference also: Dogra, S. A., Lightfoot, K., Kerr, R., Hall, J., Joseph, O., Siddiq, N., ... & Wright, J. (2022). Born in Bradford Age of Wonder cohort: A protocol for qualitative longitudinal research. Wellcome Open Research, 7(270), 270. doi: 10.12688/wellcomeopenres.18096.1."

Born in Bradford (BiB) is a population-based birth cohort study of 13,818 children born between 2007 and 2011 and their families⁶. BiB participants are currently transitioning to

secondary school, and the Wellcome Trust have funded a new wave of research (BiB Age of Wonder) that will follow the children and young people through to age 21 years. Age of Wonder has a strong focus on participant engagement; throughout 2021 we conducted focus groups and workshops with young people to co-produce the survey questionnaires that will be used in the next few years⁷.

The aim of Age of Wonder is to understand the causes and consequences of health and wellbeing at key life transitions into adolescence and adulthood, collecting information on family, lifestyle, environmental, cognitive, social and health exposures and outcomes. The MacArthur Scale was presented to young people for comment on its potential inclusion in the survey to measure subjective social status.

As part of this co-production process, we received consistently negative comments and concerns in regards to the MacArthur Scale items. Young people expressed concern about being “uncomfortable or embarrassed” about having to answer these items, with another stating that such items were “divisive”. Some stated that they get compared enough in everyday life, “without putting it on a ladder”. Young people felt that being asked to respond to the ladder question would encourage them to “talk about it and compare themselves”, something that one young person stated is “the opposite of what school encourages us to do - not to compare yourself with others”. Several individuals suggested adding a message about the sensitive nature of the topics being asked at the beginning of the survey, to acknowledge that some may find these questions “triggering”. These comments suggested that it was likely that the MacArthur scale items would be met with unease and discomfort if used amongst a larger group of similarly aged young people. As a result of this co-production, we decided to omit the MacArthur Scale from our Age of Wonder study.

Responses to the MacArthur Scale of Subjective Social Status in a contemporary birth cohort study

Born in Bradford's Better Start (BiBBS) is a population-based birth cohort study with ongoing recruitment from 2016 of pregnant women within three inner-city wards of Bradford, UK⁸. Bradford is the 5th largest city in England, with a population of more than 530,000. The city has an ethnically diverse population, including a large Pakistani community and growing communities of East European and Roma people. It has high levels of poverty and deprivation, and the three wards included in this study (the Better Start Bradford area) are among the most deprived in Bradford district and among the 10% most deprived in England⁹. BiBBS aims to understand the lives, relationships, wellbeing, and social and economic circumstances of pregnant women and their children.

The current release of BiBBS baseline data is a data-freeze at 30th November 2021¹⁰, with 1,861 women in total who completed a long version of the baseline survey, generally administered at 26–28 weeks gestation, that included the MacArthur Scale of Subjective Social Status (measuring the social status of individuals in relation to both their Bradford

community and England as a whole). The sample includes 1,763 women who had one pregnancy, 97 women with two pregnancies and one woman with three pregnancies since January 2016. Ethical approval for recruitment and collection of baseline and routine outcome data and biological samples for the cohort has been approved by Bradford Leeds NHS Research Ethics Committee (15/YH/0455). Research governance approval has been provided from Bradford Teaching Hospitals NHS Foundation Trust.

Whilst conducting an analysis of participants' responses to the ladder questions (paper forthcoming), we noticed a higher non-response rate than we typically receive within our studies in Bradford. When presented with the ladder asking them to rate their social status relative to England on a larger scale, 16% responded that they did not wish to answer, and 1.3% had a missing response; for the ladder which asked participants to compare themselves to other people in their neighbourhood, 13.3% responded that they did not wish to answer and 1.3% had a missing response.

To explore the possibility that survey fatigue was leading to a high non-response rate, we looked at the responses to questions that came just before, and just after, the MacArthur scale items. For both the preceding question about self-reported financial status and the following question about family relationships, rates of non-response were much lower than for the ladder questions (Table 1).

Participants appear to be selectively choosing not to complete one or both of the ladder items, whereas they almost always choose to answer questions about self-reported financial status and family relationships, items that may be deemed as being sensitive in nature. As the MacArthur Scale has been widely used and validated throughout the world it seems unlikely that participants found the questions difficult to answer.

Discussion

In summary, we found that there was a high level of non-response specific to the MacArthur scale questions amongst an ethnically diverse population of pregnant women in Bradford, and that young people involved in a co-production process in Bradford provided an overwhelmingly negative response towards the use of the MacArthur Scale of Subjective Social Status. Taken together, these findings suggest that contemporary health research studies may face a challenge in (a) trusting the validity of responses to the measure if rates of missing data are high, and (b) measuring subjective social status at all.

Our participants' reactions and responses to the MacArthur Scale may be telling us about the high prevalence of the social pain of subjective social status in contemporary society. Literature illustrates that social pain activates the same neural substrates as physical pain¹¹ – it really does hurt – and that experiencing ‘social evaluative threat’ (being exposed to the negative judgement of others) is associated with heightened hormonal stress responses¹². Further research is needed to explore reactions to, and responses to, the MacArthur Scale and to understand people's lived experiences of relative

Table 1. Response rates to questions within the Born in Bradford's Better Start baseline survey (n=1,861 women).

Survey question	Do not wish to answer	Missing	Total non-response
Immediately preceding MacArthur Scale			
How well would you say you (and your partner) are managing financially these days?	2.3%	0.5%	2.8%
Compared to a year ago, how would you say you (and your partner) are doing financially now?	3.6%	0.5%	4.1%
MacArthur Scale of Subjective Social Status			
Where would you place yourself on the ladder in relation to other people in your neighbourhood?	13.3%	1.3%	14.6%
Where would you place yourself on the ladder in relation to other people in England?	16.0%	1.3%	17.3%
Immediately following MacArthur Scale			
I feel closely attached to my family	2.5%	1.4%	3.9%
My family take notice of my opinions	3.1%	1.4%	4.5%
Sometimes I feel excluded in my own family	4.7%	1.4%	6.1%

social status and their sensitivities to being asked to compare themselves to others in this way. Some research suggests that subjective social status may vary across population groups; Shaked *et al.*,¹³ report modifications of the effect of subjective social status on health by sex and ethnicity. It may well be that the reactions and responses we have encountered in Bradford would not be found, or would be even more pronounced, in different societies and communities.

Research is also needed to co-produce acceptable and feasible measures that can capture how individuals see themselves in relation to others. In the contemporary context of high prevalence of social media use in many age groups, this feels like an important construct to measure in studies of the psychosocial determinants of health and wellbeing, and one that should be captured in surveys and not only in in-depth qualitative studies. The very reasons why people dislike the MacArthur Scale is what makes measuring subjective and relative social status so important. Seeing ourselves through the eyes of others shapes our wellbeing¹⁴, now perhaps more than any time in history, and if researchers are to be able to study the consequences of this, they need acceptable and valid measures of subjective social status.

Data availability

Researchers are encouraged to make use of the BiBBS data, which are available through a system of managed open access.

Before you contact us, please make sure you have read our [Guidance for Collaborators](#). Our BiB Executive reviews proposals on a monthly basis and we will endeavour to respond to your request as soon as possible. You can find out about the different datasets in our Data Dictionary. If you are unsure if we have the data that you need please contact a member of the BiB team (borninbradford@bthft.nhs.uk).

Once you have formulated your request, please complete the 'Expression of Interest' form available [here](#) and send to borninbradford@bthft.nhs.uk. If your request is approved, we will ask you to sign a Data Sharing Contract and a Data Sharing Agreement, and if your request involves biological samples we will ask you to complete a material transfer agreement.

Acknowledgements

BiB and BiBBS are only possible because of the enthusiasm and commitment of the children and parents in the cohort. We are grateful to all the participants, health professionals, schools and researchers who have made Born in Bradford happen. Research results are disseminated through <https://borninbradford.nhs.uk/our-findings/> and actively through various engagement activities to parents, children and young people and stakeholders. For BiBBS, we are grateful to all the participants, the Community Research Advisory Group, the Better Start Bradford partnership and staff, Better Start Bradford project staff, health professionals and researchers who have helped to make BiBBS happen.

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[Publisher Full Text](#)

Open Peer Review

Current Peer Review Status:  

Version 1

Reviewer Report 09 February 2023

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The wrong tool for the job? Ladders as a measure of subjective social status.

The main contribution of the research note is to identify the limitations of the widely used MacArthur scale of subjective social status. The authors identify that self-perceived social status has profound impacts on individuals' physical and mental health, so finding appropriate ways to measure this subjective trait is consequently of great importance. This scale requests respondents to position themselves on a scale/ladder from rank/rung one to ten - the higher the number the higher their perceived social status.

With evidence from two different groups in the Born in Bradford study, the authors show how participants had distinct reservations when responding to this measure in research. Criticism of the MacArthur scale's use in the study was demonstrated by young people advising against its use in a forthcoming study, and as mothers-to-be voting with their feet by not answering this question as part of a longer survey. The potential inability of the MacArthur scale to ethically and accurately capture subjective social status, as showcased in these two observations, is the motivation for writing the research note.

Another contribution was the focus on engaging young people in the co-production of a survey. The MacArthur scale was shared with young people as an option for inclusion in the survey; their critical feedback resulted in this scale being excluded from the survey design. Given our interest in engaging young people in research, we were pleased to learn of this co-produced survey for the 'Age of Wonder' study. This is especially interesting in a context when much youth-involved research to date has been qualitative (e.g. Proefke and Barford, forthcoming¹).

Overall the paper is well written, insightful, useful, and easy to understand. We have a few suggestions for improvements. In the abstract it is worth specifying the type and level of responses to the MacArthur scale which were observed, instead of referring somewhat vaguely to 'unexpected reactions'. This clarification would help communicate your key messages more strongly within the abstract. More generally, the paper could be improved by stronger signposting of the key message(s) throughout, rather than leaving this as something to be discovered in the discussion section. One place to do this would be adding a sentence or two at the end of the introduction. It would also help if the authors could clearly state early on that there are two data sources referred to in this note – the co-production of a survey with young people and an earlier survey with mothers, and clarify the connection between these groups. Also, perhaps also rewrite this clause in simpler language: "The current release of BiBBS baseline data is a data-freeze at 30th November 2021".

To extend the thinking and reflection on the authors' observations, we would like to share a few thoughts. Firstly, it is worth questioning the suitability of a ladder for depicting socio-economic hierarchies. Arguably, the ladder is misleading. A ladder suggests something to be climbed (up or down), fitting into political discourses focused on social mobility and opportunity (and avoiding discussions of actual outcomes; see Barford, 2016²). This comes with the implied degree of responsibility for one's own position, irrespective of the wider structural limitations/advantages that people face. The ladder also seems to depoliticise inequalities because it doesn't convey the proportion of the population who would be found at each rung, and implies that movement between rungs is equally easy (e.g. no recognition of glass ceilings).

The authors could usefully consider visual alternatives to the ladder which would demonstrate how being on the lower rung would mean being with the majority, and which could provoke less shame about positioning oneself low down (in the same way that the occupy and 99% movements were based on solidarity and shared disadvantage). A pyramid could be one way to do this (e.g. Barford and Ahmad, 2021, figure 2³). Nancy Krieger (Krieger, 2008⁴) has a useful paper on iconographies of inequality. Ha-Joon Chang (Chang, 2002⁵) elaborates on the ladder metaphor to critique how wealthy countries have blocked the economic development of poorer countries, in his book 'Kicking Away the Ladder.'

Another consideration is about what the MacArthur scale is really getting at. Respondents are asked to reflect upon their social status based on their job, income and education. Arguably these are relatively objective measures - one's income, job, and level of education are factual and measurable. Yet these are used to access self-perceptions of social status, something which has many more than three dimensions. In Keith Payne's book 'The broken ladder' (p.13) (Payne, 2017⁶) he suggests that only 20% of the self-evaluation of social status is based on income, education and job status. The authors could make reference to research into the discrepancies between subjective social status and objective markers (e.g. Adler *et al.*, 2000⁷).

We would be delighted to see the authors consider the reasons for these negative reactions from the two groups with whom they trialled the MacArthur ladder. The paper considers social evaluative threat in the discussion; could this be heightened and more painful precisely because the scale requires respondents to internalise external judgements and then report on themselves? The request to rank oneself demands the dropping one's guard, breaking into any protective defensiveness about one's own social positioning. It would also be interesting to know whether there was a pattern to rejecting the MacArthur scale question. It is possible that some groups are

more uneasy about this question than others; could the authors analyse patterns of non-responses in the second study according to other characteristics? Looking ahead, would different imagery result in different levels of engagement, and how might this vary between groups? And of course, we are curious to know what will be missed by excluding this measure from the 'Age of Wonder' study? What information could this have provided you with, and why was the measure of interest for the Born in Bradford research in particular?

Finally, as times change, sensitivity to the question of social status may have increased. Could this measure have become outdated - or was it always problematic? As we embark upon 2023, the 'Age of Wonder' cohort have almost certainly been exposed to considerable posturing and displays of wealth (via social media) compared to previous generations. As such, the reference group for the Born in Bradford cohorts when identifying their position in wider society may include a wider spectrum of income and wealth. Having a higher status reference group may heighten the contrast in status and thus diminish respondents' perceived social status to the extent that they would refuse to answer a question on this topic - at a time when research into inequalities and the damage they cause is highly relevant.

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Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: The reviewers have a shared interest in socio-economic inequality. Kate has expertise in social surveys and statistical analysis related to socio-economic categorisations. Anna's PhD focused on visualisations and discourses of inequality and how people respond to these in diverse settings. Since her PhD Anna has continued to research issues of inequality, disadvantage, and interventions to address these. Both Kate and Anna share a research interest in young people, including how to involve young people in academic research.

We confirm that we have read this submission and believe that we have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 02 February 2023

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This is a really interesting report, which will be useful to other research teams who are thinking about capturing data on subjective social status. It is really useful to see the patterns of missing data in the MacArthur ladder variable, and how these compare with the preceding and following questions. It was also interesting to hear about the experiences in the focus groups with young people. I did wonder if it might be possible to present a bit more information about/from the focus groups - e.g. if there are any relevant quotes, or if there are any data on how many focus groups were conducted, with how many young people in each, and how many of the groups agreed with the concerns about the MacArthur ladder. I'd also be interested in how the MacArthur ladder was presented to each group, and whether the concerns about the ladder were raised spontaneously in the groups, or whether questions about potential concerns were posed to the groups. I recognise that not all of these data may be available, and would suggest that these additions would be welcome but are not essential if they are not possible.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Not applicable

Are all the source data underlying the results available to ensure full reproducibility?

No source data required

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Social epidemiology

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.
