TITLE PAGE

Title: The collection and reporting of measures of deprivation in musculoskeletal research: an international survey study.

Running Title: Social deprivation reporting MSK trials - survey

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DECLARATIONS

ABSTRACT

The reporting of deprivation measures is typically poor in musculoskeletal (MSK) research. This survey explored MSK researcher's perspectives on the deprivation indices and measures that are, or could be, collected and reported in their studies, and potential barriers and facilitators to collecting these data. An online international survey was undertaken to determine knowledge, use and reporting of deprivation indices and measures by MSK researchers and the factors which influence this. Data were analysed using descriptive statistics. 42 respondents from 16 countries completed the survey. The Index of Multiple Deprivation was the most well-known measure (26%) although only 17% had reported data from this index. Most commonly reported markers of deprivation were: employment (60%), education (60%) and ethnicity (50%). Most common barriers to collecting these data included: uncertainty on perceived importance of deprivation measures (79%), what should be collected (71%), and concerns on missing data and sensitivities from participants reluctant to provide this information (33%). Consensus on necessary measures to be collected and reported (88%) and improved awareness of the relationship between deprivation and MSK health (79%) were considered key activities to improve deprivation recording in MSK research. To conclude, there is poor awareness of the collection and reporting of deprivation measures in MSK research. Greater understanding on the importance of these data in reducing inequalities in MSK care is needed to facilitate improvement. This would enable greater assessment of generalisability and to assess whether interventions have different effects in people from different socio-economic groups.

INTRODUCTION

There is an imperative to tackle avoidable differences in health (White et al, 2009). This is now recognised in research design and reporting (Welch et al, 2012). Increasingly, studies are investigating the application of an 'equity lens' when reporting the effects of interventions in randomised trials (O'Neill et al, 2014; Welch et al, 2017). This is important as it permits the assessment of generalisability of trial findings to wider or specific populations. Collecting relevant data on social deprivation status also enables evaluation to determine whether deprivation is a treatment effect modifier and importantly whether an intervention might (albeit inadvertently) contribute to health inequity (Smith et al, 2020). Furthermore, from an ethical perspective Principle 14 of the Declaration of Helsinki (World Medical Association, 2013) states: populations which are underrepresented in medical research should be provided with appropriate access to participation in research. Accordingly, there is an ethical imperative to ensure that this data is collected to ensure it is possible to evaluate how representative research is to the wider community.

To promote the collection and reporting of social deprivation data, frameworks have been developed to explicitly consider equity and social stratification in research conduct and reporting. One such framework is the PROGRESS framework (place of residence, race/ethnicity/culture/language, occupation, gender/sex, religion, education, socioeconomic status, and social capital) (Welch et al, 2012).

It is acknowledged that participants in clinical trials are often not representative of the populations for which the interventions are intended (Witham et al, 2020). We previously reported a bibliometric analysis of 402 trials recruiting people with MSK disorders published between January 2019 to June 2020.[5] This assessed the frequency of reporting indexes such as the Index of Multiple Deprivation(Office for National Statistics, 2015), the USA Social Deprivation Index (Butler et al, 2013) and the New Zealand Index of Deprivation (NZDep2013)(Atkinson et al, 2014), in addition to measures/markers of deprivation. We reported that trials rarely reported deprivation indexes (Smith et al, 2020). Only two trials (1%) reported deprivation indices (Darlow et al, 2019; Hewlett et al, 2019). When assessed by individual measures of deprivation, 164 trials (41%) reported one or more measures. The most reported individual measures of deprivation were employment status (18%), highest level of educational attainment (15.5%) and morbidity (20%). Race (7%), ethnicity (6%) and annual income (1%) were infrequently reported. Community-based deprivation indicators such as premature death, quality of life, crime, location to amenities, housing quality, air quality and community status on road traffic accidents were not reported in any trial. One trial (Singh et al, 2019) presented subgroup results by deprivation measures. A number of important research priority were

presented. Firstly, whilst there was wide diversity in deprivation measures reported, there was no consensus on what should be measured or on how trialists selected which measures to use. It is possible that poor understanding of the importance of collecting relevant indicators of deprivation (or their proxies) influences poor reporting of these measures. This has important implications for stratification and sub-group analyses to explore potential treatment effect-modification across people from different levels of deprivation.

The purpose of this study was therefore to begin to address these uncertainties by asking researchers their thoughts around the measurement and reporting of deprivation in studies recruiting people with MSK disorders. Specifically, we sought to understand:

- Which indices and measures of deprivation do MSK researchers know, use and report?
- What factors affect the collection and reporting of deprivation indices and measures in MSK research?
- Is there an association between the knowledge, collection and reporting of deprivation indices and measures, and the characteristics of respondents i.e. country of origin, academic background and clinical speciality?

METHODS

An international online, cross-sectional survey was undertaken.

Participants were recruited through two methods. Firstly, we identified corresponding authors from 402 studies which formed the basis of our previous bibliometric analysis (Smith et al, 2020). Each corresponding author was emailed an invitation to complete the survey, including a hyperlink to the survey. Secondly, we advertised the survey in weekly tweets through Twitter. The tweets included the survey hyperlink. Consent was ensured through an opening page, prior to the first survey question.

The online survey was delivered using Google Forms (Google LLC, California, USA). The survey is presented in **Supplementary File 1**. Potential participants were asked to read through an initial information page which detailed the survey's objectives and processes and explained how data would be stored and used. Following this, they were asked to provide signed consent. For those who did so, the survey was released for completion. The survey gathered information including:

- Basic demographic information: country of residence; clinical/academic position; clinical background; highest educational award; method of research most associated with (quantitative/qualitative/mixed methods); years since receiving highest education award; years since most recent empirical study was published.
- Knowledge of deprivation measures and indices: which of these deprivation indices have you: (1) heard of; (2) collected in a research project; (3) reported in a research paper/report?
- Barriers to reporting deprivation indices and measures: why do you consider that deprivation data are rarely reported in MSK research publications?
- Facilitators to reporting deprivation indices and measures: what do you feel could improve the reporting of deprivation data in MSK research publications?

The survey was developed by the research team to identify factors which were hypothesised to be important in the update/reporting of social deprivation measures by MSK researchers. The proposed social deprivation measures presented to respondents were generated from the team's previous assessment of potential social deprivation measures reported in clinical trials (Smith et al, 2020). The survey took approximately 20 minutes to complete. It was piloted with five MSK physiotherapists and researcher who had previously collaborated with the research team. Their assessment did not change the content or format of the survey but informed the anticipated duration of the survey. Their responses were not included in the reported results.

The survey link was posted on 20th October 2020 and closed on 27th November 2020. After three weeks of opening, a reminder email was sent to all non-responding corresponding authors from the first approach strategy to provide another opportunity to complete the survey. Weekly tweets were sent throughout the five weeks the survey was open.

Data Analysis

Descriptive statistics were used to summarise respondent's characteristics and their responses. Categorical data were presented as frequency and percentage values. Continuous data were presented as mean and standard deviation (SD) values. Analyses were undertaken on Stata version 16.0 (Stata Corp, Texas, USA).

RESULTS

Respondent characteristics

In total, 42 people responded to the survey. Respondent characteristics are presented in **Table 1**. In summary, the majority (42%) were based in the UK, 12% from Australia, 7% from the Netherlands and 5% from New Zealand, Brazil and the United States of America. Nine respondents originated from other countries across Europe, Asia and North America. Over half (60%) of respondents classified themselves as academics or researcher, with 69% being educated to doctoral level. Fifty-five percent considered clinical trials as their principal area of research, with 55% from a physiotherapy background, 17% orthopaedic surgery and 12% rheumatology.

Awareness and usage of deprivation index and measures

Over half of respondents had not heard of the six deprivation measures presented in the survey (**Supplementary File 1; Table 2**). The Index of Multiple Deprivation was the most well-known measure (26%) whereas the Carstairs Index was the least known (10%). Seven respondents (17%) responded that they had reported data from the Index of Multiple Deprivation, two (5%) had reported data on the New Zealand Index of Deprivation whilst one respondent (2%) had reported data on the Townsend Material Deprivation Score. Respondents identified other indices which were not originally proposed. These included the Index of Community Socio-educational Advantage (ICSEA, 2013) and Socio-Economic Indexes for Areas (SEIFA, 2008) by one respondent, and items from the Financial Literacy Core Questionnaire (FLCQ, 2013) by a second respondent.

Table 2 summarises the results on the awareness and usage of deprivation measurements in MSK research. As this illustrates, the most commonly reported measures of deprivation reported were employment (60%), education (60%), ethnicity (50%) and morbidity (43%). The least frequently reported measures included social factors including local amenities (0%), air quality (0%) and community status on road traffic accidents (0%). Whilst a number of measures such as car ownership, proportion of people living in poverty, community statistics to premature death, housing quality and crime were known to over 90% of respondents, they were reported in research papers by less than five percent.

Respondents identified additional measures not initially listed in the survey. These included: occupation and social capital (one respondent) income source (one respondent), use of food banks (one respondent) and health literacy such as the Health Literacy Questionnaire (Osbourne et al, 2013).

Barriers and facilitator for adoption of deprivation index and measures

A summary of the barriers and facilitators for adoption of deprivation measures and indices are presented in **Table 3**. The most common barriers to collecting these data were ranked as: prioritising other measures of contextual factors which are perceived as more important (79%), uncertainty on what data should be collected (71%), fear of missing data due to participants not wishing to provide this information (33%), time and costs to collect this data (33%) and societal attitudes towards minority and diverse communities (33%). One participant felt that not understanding the relevance of these data was an important barrier. Twenty-six percent of respondents believed that reporting deprivation was not important.

The most frequently reported facilitator to collecting deprivation measures/indices was if there was a consensus on the measures to be collected and reported (88%). Seventy-nine percent of respondents felt that a greater awareness and understanding of the relationship between deprivation and MSK health would improve the likelihood of collecting these data, whilst 67% felt that mandating the use of reporting checklists that included measures of deprivation could facilitate the collection and reporting deprivation measures.

DISCUSSION

The findings of this survey indicate that people who research MSK conditions may largely have limited awareness of collecting and reporting measures of deprivation. This may explain why these data are infrequently reported in academic papers. Whilst researchers are aware of individual measures which indicate deprivation, these are not consistently reported to enable a full understanding of the characteristics of their patient cohorts. Factors such as believing deprivation data is a low priority, uncertainties around what data should be collected and concerns that they and their participants may feel uncomfortable about providing such data which could appear intrusive, are also acknowledged barriers. Increasing agreement on what measures or indexes should be collected, increasing

awareness of the importance and requirement for collection, and a better understanding of the best ways to collect these data, were considered key facilitators to addressing this short-coming.

The results of this survey reflect the findings of our previous bibliometric analysis of 402 MSK clinical trials (Smith et al, 2020). The low reporting of measures of deprivation indices but higher reporting of individual measures particularly morbidity, employment and education were reported. However, the survey indicates a far higher reporting of these measures than our bibliometric analysis. For instance, the bibliometric analysis reported the frequency of morbidity, employment and educational status in 20%, 18% and 16% of studies compared to 43%, 60% and 60% in this survey. This may reflect respondents being a self-selected sample of individuals more interested in deprivation measures than non-respondents. Nonetheless the current findings suggest deprivation measures are not frequently collected and reported, providing further evidence of this deficit in research conduct.

A third of respondents reported concerns that participants in MSK trials may not feel comfortable about providing data on deprivation measures. Discomfort surrounding the social etiquette of collecting data on race and ethnicity within clinical encounters has been previously reported (Hasnain-Wynia et al, 2021). While Baker et al (2005) suggested there is support to collect this data, reservations about what the data will be used for and whether if appear discriminatory for both patients and healthcare professionals (Baker et al, 2005). Providing a full explanation of why the data is being collected may alleviate some of those concerns. Making this explanation directly related to improving care for the most disadvantaged to MSK interventions could be a most effective strategy to change this perspective (Baker et al, 2005).

Advocates for the collection and reporting of deprivation data argue this is critically important for two key reasons. Firstly, reporting this data enables the reader to more-clearly understand the characteristics of study cohorts. This may facilitate greater generalisability of findings to specific populations, thereby aiding targeted research translation into practice for people with particular need (Welch et al, 2012; Smith et al 2005). For instance in MSK practice, a significantly higher prevalence of chronic pain is reported by black ethnic groups in the UK compared to other ethnic groups (Public Health England, 2018). Bangladeshi, Pakistani, Chinese and Black groups in the UK are twice as likely to be living on low incomes compared to the white population which also highlights systemic inequality (Public Health England, 2020). There is a higher prevalence of chronic pain in people living in deprived areas compared with those in least deprived areas and unemployed people with disability versus employed people (Public Health England, 2020; Karran et al, 2020). These combined factors

may result in multiple health disparities (Newman et al, 2017). Thus, the reporting of deprivation measures is particularly pertinent in MSK practice.

Secondly, collection of deprivation measures permits the analysis of trial findings by these potentially important factors. Poverty has been associated with increased symptom catastrophisation, pain severity, pain interference and disability in people with chronic pain (Newman et al, 2017). Greater deprivation is also associated with higher prescribing of slow-release, high-dose opioids (Curtis et al, 2019), despite benefits being minimal in chronic pain (Ballantyne et al, 2016; NICE, 2020). Accordingly, deprivation may be a major confounding factor in MSK research suggesting its role as an effect-modifier to outcome. For example, individuals with chronic pain and lower levels of education, literacy and working memory may benefit more from cognitive-behavioural therapy than a pain psychoeducational approach (Van Dyke et al, 2019). By not collecting data to catagorise deprivation level, it would remain unclear whether patients from different deprivation strata respond differently (or not) to specific interventions. The consistent collection of such data would permit such important subgroup analyses, to allow a better understand of whether such effects occur.

Respondents identified several factors which may facilitate the collection and reporting of measures of deprivation in MSK trials. The key activity recommended was the increase in understanding of deprivation measures in MSK symptoms, why it is important that they are collected and determining what data should be collected, and how. This aligns with findings from stakeholder workshops to promote inclusive research in-which a need for a set of information resources and training to support research teams was identified as a key priority area (Public Health England, 2020). Organisations such as the UK National Institute for Health Research (NIHR, 2020) now request that trialists collect data on measures of social equity including: geographical location, age, ethnicity, socioeconomic status and access to health or social care, but on the understanding that this will assess inclusion into trials rather than to categorise/subgroup analyses. Nonetheless, this is an important step towards promoting deprivation measures as a standard element of data collection in MSK research. To take this work forward, further study to gain greater representation through consensus group activities is required. This would include engagement with trial stakeholders such as patient groups, funders, researchers and journal editors, to gain consensus on what deprivation measures should be reported in the least intrusive way. This would also include how to collect these data with different population, how to talk about the measures with participants and the etiquette needed around proxy measures of deprivation, such as income.

Whilst this survey provides important findings to indicate how researchers may be supported to collect and report deprivation measures in MSK research, a number of important limitations should be considered. Firstly, the cohort consisted of 42 respondents. Whilst they represent views from across the world, this is a relatively small number of respondents in total. Furthermore, this cohort may be consisted self-selecting, as individuals volunteered to complete the survey and therefore we may only have gained the views of people interested in deprivation reporting, and not those who may be least interested in collecting or reporting these data. Consequently, there were insufficient data to explore the potential relationship between respondent demographic characteristics such as clinician versus academic positions, country of origin, educational or professional background, and their responses to the use of deprivation indices and measures. Such an analysis may have provided granularity on potential explanatory variables to reporting.

CONCLUSION

There is low awareness and reporting of measures of deprivation in MSK research. This is partly due to researchers not viewing this as important contextual information and uncertainty regarding which specific data would best illuminate social deprivation differences. There may be concerns that participants may not wish to report these data. Better promotion of why it is important may help to avoid issues of missing data. Activities are now warranted to improve reporting. This includes work to gain consensus on what data should be collected and how this may be used to allow assessment of generalisability and effect modification from interventions to treat MSK disorders.

FIGURE AND TABLE LEGENDS

Table 1: Survey respondent characteristics

Table 2: Summary of response to awareness and usage of social deprivation index and measures in musculoskeletal research.

Table 3: Summary of responses to potential barriers and facilitators to reporting of social deprivation data in musculoskeletal research publications.

Supplementary File 1: Survey

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Table 1: Survey respondent characteristics

Characteristic		Frequency (%)
N		42 (100)
Country of origin	UK	18 (42.9)
	Australia	5 (11.9)
	Netherlands	3 (7.1)
	USA	2 (4.8)
	New Zealand	2 (4.8)
	Brazil	2 (4.8)
	Belgium	1 (2.4)
	Sweden	1 (2.4)
	Hong Kong	1 (2.4)
	Republic of Korea	1 (2.4)
	Nepal	1 (2.4)
	Canada	1 (2.4)
	Denmark	1 (2.4)
	Turkey	1 (2.4)
	Italy	1 (2.4)
	Spain	1 (2.4)
Principal Job Role	Academic/Researcher	24 (57.1)
	Clinical Academic	11 (26.2)
	Clinician	5 (11.9)
	Employed by biotechnology company	1 (2.4)
	Post-doctoral researcher	1 (2.4)
Highest educational award	PhD/DPhil	29 (69.0)
	BSc/BA	5 (11.9)
	MA/MSc/MPhil/MBA	4 (9.5)
	MD	3 (7.1)
	Not documented	1 (2.4)
Years since highest educational award (mean/SD)		9.0 (SD: 7.4)
Principal areas of research	Clinical trials	23 (54.8)
	Epidemiology	7 (16.7)
	Mixed-methods	6 (14.3)
	Multiple methods	4 (9.5)
	Systematic reviews	1 (2.4)
	Basic science/translational research	1 (2.4)
Clinical professional background	Physiotherapy	23 (54.8)
	Orthopaedic surgery	7 (16.7)
	Rheumatology	5 (11.9)
	Sports therapy/rehabilitation	2 (4.8)
	Occupational Therapy	1 (2.4)
	Public health physician	1 (2.4)
	GP/family doctor	1 (2.4)
	Biomechanics/Kinesiology	1 (2.4)
	Chiropractor	1 (2.4)
Duration since last MSK research paper published	0-6 months	31 (73.8)
	6-12 months	5 (11.9)
	12-24 months	3 (7.1)
	Longer than 24 months	3 (7.1)

Table 2: Summary of response to awareness and usage of social deprivation index and measures in musculoskeletal research.

	N (%)			
	Not heard of or used this index	**Heard Of this index/measure but not used**	**Collected data from participants on but not reported**	**Reported data on this**
Index				
Index of Multiple Deprivation	24 (57.1)	11 (26.2)	0 (0.0)	7 (16.7)
USA Social Deprivation Index	33 (78.6)	9 (21.4)	0 (0.0)	0 (0.0)
New Zealand Index of Deprivation (NZDep2013)	33 (78.6)	7 (16.7)	0 (0.0)	2 (4.8)
Jarman Score	34 (81.0)	8 (19.0)	0 (0.0)	0 (0.0)
Townsend Material Deprivation Score	33(78.6)	5 (11.9)	0 (0.0)	1 (2.4)
Carstairs Index	38 (90.5)	4 (9.5)	0 (0.0)	0 (0.0)
Measures				
Morbidity	0 (0.0)	18 (42.9)	6 (14.3)	18 (42.9)
Employment	0 (0.0)	6 (14.3)	11 (26.2)	25 (59.5)
Education	0 (0.0)	9 (21.4)	8 (19.0)	25 (59.5)
Race	0 (0.0)	25 (59.5)	3 (7.1)	14 (33.3)
Ethnicity	0 (0.0)	16 (38.1)	5 (11.9)	21 (50.0)
Annual salary	0 (0.0)	24 (57.1)	6 (14.3)	12 (28.6)
Social deprivation score	0 (0.0)	32 (76.2)	0 (0.0)	10 (23.8)
Socioeconomic status	0 (0.0)	20 (47.6)	8 (19.0)	14 (33.3)
Number of people living in household	0 (0.0)	34 (81.0)	4 (9.5)	4 (9.5)
Housing	0 (0.0)	32 (76.2)	3 (7.1)	7 (16.7)
Car ownership	0 (0.0)	38 (90.5)	2 (4.8)	2 (4.8)
House ownership	0 (0.0)	36 (85.7)	2 (4.8)	4 (9.5)
Parental status	0 (0.0)	33 (78.6)	4 (9.5)	5 (11.9)
Living in poverty	0 (0.0)	39 (92.9)	1 (2.4)	2 (4.8)
Community status to premature death	0 (0.0)	39 (92.9)	1 (2.4)	2 (4.8)
Community status to quality of life	0 (0.0)	37 (88.1)	3 (7.1)	2 (4.8)
Crime	0 (0.0)	40 (95.2)	0 (0.0)	2 (4.8)
Location amenities	0 (0.0)	42 (100.0)	0 (0.0)	0 (0.0)
Quality of housing	0 (0.0)	41 (97.6)	0 (0.0)	1 (2.4)
Air quality	0 (0.0)	40 (95.2)	2 (4.8)	0 (0.0)
Community status on road traffic accidents	0 (0.0)	41 (97.6)	1 (2.4)	0 (0.0)

Table 3: Summary of responses to potential barriers and facilitators to reporting of social deprivation data in musculoskeletal research publications.

	N (%)
Barrier	
Prioritising other measures of contextual factors which are perceived as more important	33 (78.6)
Uncertainty within researchers on what data should be collected	30 (71.4)
Fear of missing data from participants not wishing to provide this information in musculoskeletal studies	14 (33.3)
Time and costs to collect this data	14 (33.3)
Societal attitudes towards minority and diverse communities	14 (33.3)
Journal editors do not expect this to be reported	12 (28.6)
Belief that it is not important	11 (26.2)
Funders do not expect this to be reported	7 (16.7)
Concerns participants do not want to be asked or may interpret as intrusive	2 (4.8)
Not knowing about it or its relevance	1 (2.4)
Extensive questioning on these issues may affect response rate	1 (2.4)
Not wanting to overburden participants with too many questions	1 (2.4)
Difficulty finding an efficient to use informative measure	1 (2.4)
Facilitators	
Consensus on what measures should be collected and reported	37 (88.1)
Greater awareness of on relationship between social deprivation and musculoskeletal health	33 (78.6)
Stipulation in reporting checklists that social deprivation should be reported	28 (66.7)
Making mandatory by funders	16 (38.1)
Greater awareness provided to study participants on the relationship between social deprivation and musculoskeletal health	14 (33.3)
Making mandatory by journal editors and journals	12 (28.6)
Expectations on social deprivation as a routine subgroup analysis	11 (26.2)
Not necessarily stipulation in reporting checklists, but increased awareness and encouraging reporting.	1 (2.4)
A guideline for collecting information on social deprivation and reporting guideline can be useful	1 (2.4)

The collection and reporting of social deprivation measures in musculoskeletal research: an international survey study.

Version 2.0 - dated: 08 October 2020

Section 1: Respondent Characteristics

Q1.1 Where is your principal country of residence?

- FREE-TEXT

Q1.2 What is your principal job role?

- Academic/Researcher
- Clinicians
- Clinical Academic
- Other: FREE-TEXT

Q1.3 What is your highest educational award?

- BSc (Hons)
- BA (Hons)
- MA
- MSc
- MPhil
- MBA
- PhD/DPhil
- MD
- Other: FREE-TEXT

Q1.4 How many years has it been since you received your highest educational award?

- Free-Text YEARS

Q1.5 What is the principal areas of research you are involved in?

- Clinical Trials (e.g. randomised or non-randomised)

- Epidemiology (e.g. observational studies, cohort studies, registry dataset)
- Systematic Reviews
- Qualitative Research
- Mixed-Methods Research
- Other:

Q1.6 What is your clinical professional background?

- Rheumatology
- Orthopaedic Surgery
- Physiotherapy
- Occupational Therapy
- Nursing
- Occupational Health
- Health Psychology
- Biomechanics/Kinesiology
- Pharmacy
- No clinical background
- Other: FREE-TEXT

Q1.7 How long has it been since your last musculoskeletal research paper was published?

- 0-3 months
- 3-6 months
- 6-12 months
- 12-24 months
- 24 months to 5 years
- Longer than 5 years

Section 2: Knowledge of social deprivation indices and measures

Q2.1 Please tick the box to represent which of the following social deprivation indices you have (1) heard of; (2) used in a research project; (3) and reported in a research project, in relation to musculoskeletal research.

	Heard Of This Index	Collected data from participants on this index	Reported data on this index
Index of Multiple Deprivation			
USA Social Deprivation Index			

New Zealand Index of Deprivation (NZDep2013)			
Jarman Score			
Townsend Material Deprivation Score			
Carstairs Index			

Q2.2 Is there another Social Deprivation Index which you have heard of or used which is not listed above?
FREE-TEXT:

Q2.3 Please tick the box to represent which of the following social deprivation measures you have (1) heard of; (2) used in a research project; (3) and reported in a research project, in relation to musculoskeletal research.

	Heard of this social deprivation measure	Collected this social deprivation measure for musculoskeletal research	Reported data on this social deprivation measure for musculoskeletal research
Morbidity			
Employment			
Education			
Race			
Ethnicity			
Annual salary			
Social deprivation score			
Socioeconomic status			
Number of people living in household			
Housing			
Car ownership			
House ownership			
Parental status			
Living in poverty			
Community status to premature death			
Community status to quality of life			
Crime			
Location amenities			
Quality of housing			
Air quality			

Community status on road traffic accidents			

Q2.4 Is there another social deprivation measure which you have heard of or used which is not listed above:
FREE-TEXT:

Section 3: Barriers and facilitators to reporting social deprivation indices and measures

Q3.1 Why do you feel social deprivation data is rarely reported and may be less frequently collected in musculoskeletal research publications?

- Prioritising other measures of contextual factors which are perceived as more important
- Uncertainty within researchers on what data should be collected
- Fear of missing data from participants not wishing to provide this information in musculoskeletal studies
- Belief that it is not important
- Funders do not expect this to be reported
- Journal editors do not expect this to be reported
- Time and costs to collect this data
- Other: FREE-TEXT

Q3.2 What do you feel could improve the collection and reporting of social deprivation data in musculoskeletal research publications?

- Consensus on what measures should be collected and reported
- Making mandatory by funders
- Making mandatory by journal editors and journals
- Stipulation in reporting checklists that social deprivation should be reported
- Greater awareness of on relationship between social deprivation and musculoskeletal health
- Expectations on social deprivation as a routine subgroup analysis
- Greater awareness provided to study participants on the relationship between social deprivation and musculoskeletal health
- Nothing could improve the reporting
- Other: FREE-TEXT

Q4. If you would like a copy of the results from this survey, please provide your email address below and we will forward you this once completed.

- <<FREE TEXT EMAIL ADDRESS>>

We would like to thank you for completing these questionnaires.
Your contribution is much appreciated.
If you have any questions or queries about this form, please contact:
Email: toby.smith@uea.ac.uk