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An independent academic psychologist, based in England, who has written extensively on different areas of psychology with an emphasis on the critical stance towards traditional ideas.

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CONTENTS

1. ACADEMIC ARTICLES

1.1. PREDATORY JOURNALS

Shamseer et al (2017) began: "The Internet has transformed scholarly publishing. It has allowed for the digitalisation of content and subsequent online experimentation by publishers, enabling print journals to host content online, and set the course for online open-access publishing. Nevertheless, an unwelcome consequence of the Internet age of publishing has been the rise of so-called predatory publishing" (p2).

Jeffrey Beall coined the term "predatory publishers" in a blog posting, and he created a list of such organisations (Wager 2017). Defining "predatory publishers" is not easy, and Beall included over fifty characteristics, but the "most concerning features of predatory journals is that they claim to peer review submissions to ensure their quality [1], but actually they do not (and will, in fact, publish anything so long as the authors pay the article processing charge)" (Wager 2017 p87) [2]. This was highlighted when Bohannon (2013) sent "clearly flawed manuscripts" to over 300 such journals, and over half accepted it without demanding changes (Wager 2017).

Shen and Bjork (2015) estimated that, in 2014, over 400 000 articles were published in around 8000 "predatory journals". Moher et al (2017) calculated that more than half of 1907 biomedical articles from 200 "journals thought likely to be predatory" were from high- and middle-income countries (with India and the USA as leading countries). This challenged the assumption that predatory journals are a risk to academics from low-

[1] Peer reviewing is usually done anonymously, but recently a judge in California ordered the "Journal of Strength and Conditioning Research" to make know the reviewers. This related to a case brought by CrossFit Inc after a 2013 study published in that journal using their training regimen had an injury drop-out of around one in six participants. The journal is published by the National Strength and Conditioning Association (NSC), which is a competitor of CrossFit Inc, who it is said "intentionally skewed the study to damage CrossFit" (Han 2018) via its editors and reviewers. The article has been corrected and subsequently retracted in 2017. The NSC has countersued CrossFit Inc for defamation.

This order to unmask reviewers is an one-off, legal expert Paul Shaw suggested, rather than the new norm for academic publishing (Han 2018).

[2] Traditionally, peer-reviewed journals charge the reader (eg: subscription fee), while predatory journals are more likely to change the author (eg: article publication or processing charges; APC), but have no or few costs (eg: no peer-review process). Legitimate open-access peer-reviewed journals can have APC (Shamseer et al 2017).

income countries [3].

Manca et al (2017a) reported that the predatory journals active in neuroscience and neurology outnumber legitimate ones. They also showed that over 10% of predatory journals were indexed in PubMed (database of medical sources) in October 2016, and over 15% in April 2017 (Manca et al 2017b). Manca et al (2017b) commented that "it is worrisome that PubMed includes journals with seriously flawed peer review processes. This issue deserves attention as these predatory journals can benefit from PubMed's massive popularity and achieve universal exposure while their largely low-quality articles can be cited in reputable journals, thus obtaining legitimacy and polluting scientific records. This matter is particularly alarming because clinical practice heavily depends on findings generated by peer-reviewed articles" (p734).

Shamseer et al (2017) compared 93 "potential predatory journals", 99 "presumed legitimate fully open-access journals", and 100 "presumed legitimate subscription-based journals" on biomedical science.

The researchers outlined the differences with predatory journals, including:

i) Aims and scope of journal - Predatory journals are more likely to cover a wider range of topics (eg: biomedical and non-biomedical articles).

ii) Journal name - More likely to be similar to another journal.

iii) Homepage - The publisher name not always indicated; more often based in low- or low-middle income countries; email contact address non-professional (eg: Hotmail); spelling and grammatical errors.

iv) Metrics - Less information about "journal impact factor", and databases indexed.

v) Editors and staff - More likely to be false/made up or used real names without permission.

vi) Editorial process - "Rapid" publication claimed, including less than one week to peer review, but limited details on how manuscript handled.

vii) Publication policy - Less likely to give details of plagiarism and retraction policy.

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[3] Cobey (2017) reported an example of a "senior scientist" in the USA who was deceived by such journals.

Wager (2017) argued that "predatory publishers" are not "a disease in themselves", but "a symptom of malaise within the academic research establishment. Without unhelpful systems of research metrics that reward researchers for the quantity rather than the quality of their output, and which may be easily gamed, predatory journals would disappear as there would be no demand for them" (p87).

Universities could be described as "knowledge factories" or "academic factories of knowledge" to suggest the emphasis on production. I would describe it as part of the "corporatisation" of academia, with certain characteristics:

- The bureaucracy within the institution (eg: Exams Office) and its "systems of justification", sometimes at the expense of teaching and research.

- Concerns for the image/brand of the institution.

- "Hype marketing" of courses and the institution.

Pagano (2017) warned against the "businessisation of science" with the emphasis on "job creation and translatability". This includes "claim inflation" (Kaelin 2017) where each academic paper "must be a complete study of basic discoveries and their immediate translation" (Pagano 2017 p381).

1.2. READABILITY

Clarity and accuracy as key to reporting scientific findings, but Plaven-Sigray et al (2017) argued that these characteristics of readability are declining. These researchers analysed over 700 000 abstracts from 123 highly cited journals, and over 143 000 full articles from six open access journals covering twelve fields of science (eg: biology and biochemistry, clinical medicine, psychiatry and psychology) since 1881.

The readability of the text was quantified using the Flesch Reading Ease (FRE) (Flesch 1948) (which is calculated based on the number of syllables per word and the number of words per sentence), and the New Dale-Chall Readability Formula (NDC) (Chall and Dale 1995). The NDC is calculated based on the number of words per sentence, and the number of "difficult words" [4]. Low readability is

[4] Readability formulas "provide an estimate of a text's readability and should not be interpreted as a categorical measure of how well a text will be understood. For example, readability can be affected by text size, line spacing, the use of headers, as well as by the use of visual aids such as tables or graphs, none of which are captured by readability formulas... Many semantic properties of texts are overlooked, including the complexity of ideas, the rhetorical structure and the overall coherence of the text...

a low FRE score [5] or a high NDC score.

The mean FRE score declined over time and the mean NDC score increased. For example, in 1960 14% of texts had a FRE score of 0 compared to 22% in 2015. "In other words, more than a fifth of scientific abstracts now have a readability considered beyond college graduate level" (Plaven-Sigray et al 2017 p4) [6]. It was noted that there was "an increase in general scientific jargon which partially accounts for the decreasing readability" (Plaven-Sigray et al 2017 p4).

Plaven-Sigray et al (2017) noted the implications of their findings: "Lower readability implies less accessibility, particularly for non-specialists, such as journalists, policy-makers and the wider public. Scientific journalism offers a key role in communicating science to the wider public... and scientific credibility can sometimes suffer when reported by journalists... Considering this, decreasing readability cannot be a positive development for efforts to accurately communicate science to non-specialists. Further, amidst concerns that modern societies are becoming less stringent with actual truths, replaced with true-sounding 'post-facts' (Manjoo 2011...) science should be advancing our most accurate knowledge. One way to achieve this is for science to maximise its accessibility to non-specialists" (p6).

Furthermore, low readability could also be a problem for specialists in the field, particularly in terms of reproducibility or replication which "requires that findings can be verified independently. To achieve this, reporting of methods and results must be sufficiently understandable" (Plaven-Sigray et al 2017 p7).

1.3. REFERENCES

Benjamin, R.G (2012) Reconstructing readability: Recent developments and recommendations in the analysis of text difficulty Educational Psychology Review 24, 63-88

Bohannon, J (2013) Who's afraid of peer review? Science 342, 60-65

Chall, J.S & Dale, E (1995) Readability Revisited: The New Dale-Chall Readability Formula Northampton, MA: Brookline Books

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Changing a text solely to improve readability scores does not automatically make a text more understandable..." (Plaven-Sigray et al 2017 p7). Alternatives having been proposed (eg: Benjamin 2012).

[5] A FRE score of 100 reflects the reading level of 10-11 year-olds, and a score of below 30 is that of university graduates (Plaven-Sigray et al 2017).

[6] Hayes (1992) reported increased complexity in scientific texts over time in a limited dataset, while Vinkers et al (2015) noted the increased use of of positive words like "novel" since the 1970s. But similar studies of US presidential speeches, novels, and news articles, for example, have found that simpler language is being used today (Plaven-Sigray et al 2017).

Cobey, K (2017) Illegitimate journals scam even senior scientists Nature 549, p7

Flesch, R (1948) A new readability yardstick Journal of Applied Psychology 32, 221-233

Han, A.P (2018) Judge orders unmasking of anonymous peer reviewers Science 359, 504-505

Hayes, D.P (1992) The growing inaccessibility of science Nature 356, 739-740

Kaelin, W.G (2017) Publish houses of brick, not mansions of straw Nature 545, p387

Manca, A et al (2017a) The surge of predatory open- access in neuroscience and neurology Neuroscience 20, 166-173

Manca, A et al (2017b) PubMed should raise the bar for journal inclusion Lancet 390, 734-735

Manjoo, F (2011) True Enough: Learning to Live in a Post-Fact Society New York: John Wiley & Sons

Moher, D et al (2017) Stop this waste of people, animals and money Nature 549, 23-25

Pagano, M (2017) Don't run biomedical science as a business Nature 547, p381

Plaven-Sigray, P et al (2017) The readability of scientific texts is decreasing over time eLife 6, e27725

Shamseer, L et al (2017) Potential predatory and legitimate biomedical journal: Can you tell the difference? A cross-sectional comparison BMC Medicine 15: 28

Shen, C & Bjork, B-C (2015) "Predatory" open access: A longitudinal study of article volumes and market characteristics BMC Medicine 13: 230

Vinkers, C.H et al (2015) Use of positive and negative words in scientific PubMed abstracts between 1974 and 2014: Retrospective analysis BMJ 351: h6467

Wager, E (2017) Editorial: Why we should worry less about predatory publishers and more about the quality of research and training at our academic institutions Journal of Epidemiology 27, 87-88

2. MIXED METHODS RESEARCH

Examples
Wittink et al (2006)
Klassen et al (2009)
Leal et al (2018)

The "paradigm wars" can be seen in the use of either quantitative or qualitative approaches to research, until the 21st century with the interest in mixed methods research "as a separate design in its own right" (Punch 2014).

Creswell and Zhang (2009) placed the origins of mixed methods research in the 1990s. They described the different views: "Some individuals focus on mixed methods as a 'method' and view the collection, analysis, and integration of quantitative and qualitative data as a clear and concrete way to understand the process. Others view the integration more broadly as combining quantitative and qualitative approaches methodologically across the spectrum of research processes, such as from the philosophical assumptions to the interpretation of the results... Still others highlight the broader philosophical assumptions that provide a foundation for this form of inquiry" (Creswell and Zhang 2009 p613) [7].

The "fundamental principle of mixed methods research" (Johnson and Onwuegbuzie 2004) is to combine the strengths of quantitative and qualitative approaches while compensating for their weaknesses. There is a pragmatism here, where "what works" in getting the research question answered matters more than "methodological purity".

Central, then, is "mixing", which can occur in three ways (Creswell and Zhang 2009):

- Merging (or side-by-side comparison; Creswell and Clark 2007) - the distinctiveness of quantitative and qualitative data are dissolved;
- Connecting - data from one approach is used to inform data collection from the other approach;
- Embedding - data from one approach is embedded in the other approach (eg: a focus group within a clinical trial).

[7] Van Meter (1990) distinguished between descending and ascending methodologies. The former being quantitative data collected at the general population level (eg: with structured questionnaires), and the latter involving qualitative data collected from selected groups (Faugier and Sergeant 1997).

That is not to say that issues do not arise from mixing methods, and Creswell and Clark (2007) provided three dimensions to help [8]:

- Timing - the order in which the quantitative and qualitative methods are used.

- Weighting - the relative importance given to quantitative and qualitative methods in answering the research question.

- Mixing - the exact mixing of the two approaches.

From these dimensions Creswell and Clark (2007) summarised four types of mixed methods designs (Punch 2014):

i) Triangulation design [9] - Quantitative and qualitative data are collected at the same time and with equal weighting in order to give two views on the same research question (eg: structured questionnaire and focused groups).

ii) Embedded (or nested) design - One approach is supportive and secondary to the other (eg: a structured questionnaire that includes open-ended questions at the end).

iii) Sequential Explanatory design - Quantitative data are collected first, and qualitative methods are then used to build on the first set of data (eg: structured questionnaire followed by detailed interviews with volunteers who completed the questionnaire).

iv) Sequential Exploratory design - Qualitative data first in order to give ideas for hypotheses for the subsequent quantitative research (eg: informal interviews first to help in design of subsequent structured questionnaire).

Creswell and Zhang (2009) described trauma research as "well suited for mixed methods research". They gave the example of an exploratory design by Banyard and Williams (2007), which was a seven-year longitudinal study of resilience to trauma of sixty-one female

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[8] Creswell et al (2011), in reference to health research, had five dimensions of difference:
- Analytic logic.
- Timing.
- Priority.
- "Point of interface" (Morse and Niehaus 2009) - ie: where in research process mixing occurs.
- Single study or multi-phase programme of inquiry.

[9] Convergent (or parallel or concurrent) design (Creswell et al 2011).

childhood sexual abuse survivors with qualitative interviews with twenty-one of them. The quantitative element involved a standardised checklist of trauma symptoms and analysis of variables (eg: income; adult friendships). Social support was found to be beneficial by both data collection approaches.

EXAMPLES

Wittink et al (2006)

Wittink et al (2006) investigated the views of depressed and non-depressed patients of interactions with their doctors with 355 over 65s in Baltimore, USA. The participants completed structural questionnaires about depression (quantitative data), while 102 individuals were interviewed in more detail (half rated as depressed) (qualitative data).

Four themes emerged from the in-depth interviews:

a) "My doctor just picked it up" - Doctors were perceived as having an intuitive capability to spot depression. "One concern, however, is that for some patients, relying on their physician's ability to 'just pick up' on their mood may obviate the need to express mood symptoms at all, leaving depression potentially unaddressed" (Wittink et al 2006 p308).

b) "I'm a good patient" - Patients did not talk about their depression because it was believed that it would spoil the positive image the doctor had of them. "The notion of the good patient may be more common among older patients who have grown up in the era of the paternalistic physician. Patients who view themselves as a good patient may operate on the notion that the good patient is one who is respectful of the physician's expertise and recommendations, will be compliant with recommendations, and does not complain or burden their physician" (Wittink et al 2006 p308).

c) "They just check out your heart and things" - No time to talk about feelings as the doctor was perceived as only interested in physical health issues. "Most patients have particular expectations in mind when they visit the doctor, although they may be reluctant to make these known directly" (Roter and Hall 1992 quoted in Wittink et al 2006).

d) "They'll just send you to a psychiatrist" - The fear of "turfing" ("a term commonly used among physicians when one passes on difficult issues to another physician with other expertise"; Wittink et al 2006 p306).

Wittink et al (2006) concluded: "From a methodological viewpoint, had we limited the analysis to patient characteristics (a purely quantitative study), we would have missed the patient's perspective. The themes represent patient voices and allowed us to identify possible contributing factors to the dynamic process of physician-patient interaction around depression" (p308).

Klassen et al (2009)

Klassen et al (2009) investigated cancer-related dietary behaviour among 156 African-American women living in low-income housing in Washington DC. Quantitative data were collected on five dietary goals related to cancer, including low alcohol consumption, low fat-intake, and five servings of fruits and vegetables eaten, and qualitative data were collected through the women describing their eating behaviours in the previous three days.

The quantitative data were summed as how many dietary goals the women achieved (eg: one respondent scored 5 out of 5 and 5% of women scored 4).

Focusing the qualitative analysis on the women who achieved no dietary goals (15% of the sample), eight themes emerged about the women's "food culture" (eg: "chaos" - no regularity to when, what and how much eaten each day).

The researchers summarised the benefits of using the mixed-methods approach thus: "The quantitative analysis allowed us to decompose eating events to understand, and perhaps prioritise, specific elements among the myriad number of nutritional problems stemming from poor diet. However, the qualitative analysis allowed us to recompose those elements into a food culture within the lives of these women and to feel the full impact of their quantitative scores" (Klassen et al 2009 p638).

Leal et al (2018)

Leal et al (2018) performed a randomised controlled trial (quantitative data) of the effects of Tibetan yoga on the quality of life of individuals with lymphoma (cancer) with an embedded qualitative interview.

Thirty-nine patients at a cancer centre in Texas were randomised to receive a programme of Tibetan yoga or not for seven weeks, and sixteen underwent in-depth interviews.

In terms of the quantitative data, the yoga group reported significantly better sleep than the control group, while the qualitative interviews revealed four inter-related themes around "moving through a dualistic

and complex cancer experience consisting of concurrent negative and positive emotional states throughout their cancer journey as they re-evaluated the deeper meaning of their lives" (Leal et al 2018 p41).

The authors concluded that "the theme of acceptance was significantly more prominent among the yoga group compared with the control group has value whether taken as a truth claim or as a description of participants' subjective experience of cancer" (Leal et al 2018 p51). Only mixed methods could capture the "complex cancer experience", argued Leal et al (2018).

REFERENCES

Banyard, V.L & Williams, L.M (2007) Women's voices on recovery: A multi-method study of the complexity of recovery from child sexual abuse Child Abuse and Neglect 31, 275-290

Creswell, J.W & Clark, V.L.P (2007) Designing and Conducting Mixed Methods Research Thousand Oaks, CA: Sage

Creswell, J.W & Zhang, W (2009) The application of mixed methods designs to trauma research Journal of Traumatic Stress 22, 6, 612-621

Creswell, J.W et al (2011) Best Practices for Mixed Methods Research in the Health Sciences Office of Behavioural and Social Sciences Research (OBSSR), National Institutes of Health (NIH)

Faugier, J & Sergeant, M (1997) Sampling hard to reach populations Journal of Advanced Nursing 26, 790-797

Johnson, R.B & Onwuegbuzie, A.J (2004) Mixed methods research: A research paradigm whose time has come Educational Researcher 33, 14-26

Klassen, A.C et al (2009) Mixed method approaches to understanding cancer-related dietary risk reduction among public housing residents Journal of Urban Health: Bulletin of the New York Academy of Medicine 86, 4, 624-640

Leal, I et al (2018) An exploration of the effects of Tibetan Yoga on patients' psychological well-being and experience of lymphona: An experimental embedded mixed methods study Journal of Mixed Methods Research 12, 1, 31-54

Morse, J & Niehaus, L (2009) Mixed Methods Design: Principles and Procedures Walnut Creek, CA: Left Coast Press

Punch, K.F (2014) Introduction to Social Research: Quantitative and Qualitative Approaches (3rd ed) London: Sage

Roter, D.L & Hall, J.A (1992) Doctors Talking with Patients/Patients Talking with Doctors Westport, CT: Auburn House

Van Meter, K.M (1990) Methodological and design issues: Techniques for assessing the representatives of snowball samples National Institute on Drug Abuse: Research Monograph Series 98, 31-43

Wittink, M.N et al (2006) Unwritten rules of talking to doctors about depression: Integrating qualitative and quantitative methods Annals of Family Medicine 40, 4, 302-309

3. SOCIO-ECONOMIC STATUS, SMOKING AND STILLBIRTH: AN EVALUATION OF ONE STUDY

Appendix A - Different stillbirths
Appendix B - Finnish study

Within developed countries, there are negative relationships between stillbirths [10] and infant mortality, and socio-economic status (SES) [11] [12], and between stillbirths and infant mortality, and maternal smoking. What about smoking and SES together?

Gray et al (2009) investigated this question using data from Scotland. Information on maternity admissions in Scottish hospitals between 1994 and 2003 were available on a national database [13]. All live singleton births [14] and stillbirths [15] during that period were analysed as part of a population based [16] retrospective cohort study [17] [18].

Maternal smoking during pregnancy was categorised as

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[10] Stillbirths account for over two-thirds of perinatal mortality in the UK (Seaton et al 2012). "Stillbirths are not a homogeneous group, with a variety of possible causes potentially resulting in a stillbirth" (Seaton et al 2012 p2) (appendix A).

[11] Official reports in Britain noted the steep social class differences in foetal and infant mortality rates (eg: "Black Report"; DHSS 1980).

[12] Differences between social classes in infant mortality is influenced by (Chalmers 1985):

- The classification of occupations and social class
- The differential exposure to environmental risks based on social class
- Movement between the classes.

[13] Scotland had a population of around five million at that time, of which about one million were women of reproductive age (with 55 000 births a year). The "coverage and quality of the data have been established to be good" (Gray et al 2009 p907) - 99% complete (with 1.7% of cases missing information to calculate deprivation score).

[14] Excluding babies weighing less than 500 g or greater than 6499 g at birth, and mothers 10 years or younger.

[15] UK Still-Birth Definition Act 1992: "a child which has issued forth from its mother after the 24th week of pregnancy and which did not at any time after being completely expelled from its mother breathe or show any other signs of life" (http://www.bmj.com/content/339/bmj.b3754).

[16] A large sample, and using routinely collected data by hospitals and collated by government (Scottish morbidity records). It is comprehensive as less than 1% of births take place outside a hospital.

[17] An archival retrospective study means the current researchers have no control over the type of data collected. For example, there was no information on maternal alcohol and illicit drug use, which the researchers admitted could be relevant. It depends on the accuracy of collation, and it does not include anomalies (eg: mother who lives country before infant death).

Only ten years of data available, which would limit assessment of long-term trends. On the other hand, mothers may be behave differently between the 1990s and 2000s (eg: public health campaigns to discourage maternal smoking; medical technology advances). No information about stillbirths etc based on year of data.

[18] Thunhurst (1984) observed that "statistical information is not a value-free instrument which somehow 'speaks for itself'; it is socially constructed. Choice of data scrutinised, interpretation of information produced, and even the technical procedures employed necessarily reflect the ideological perspective of the analyst" (quoted in Chalmers 1985).

present or absent [19] based on self-reports [20], and SES was categorised into five groups based on deprivation score for postcode [21] [22].

In total, there were 2699 stillbirths (ie: 5.1 per 1000 total births) and 2182 infant deaths (within 1 year old [23]) (ie: 4.1 per 1000 live births). For mothers from the least deprived areas, the rates were 3.8 and 3.2 respectively, compared to 5.9 and 5.4 respectively for the mothers from the most deprived areas of Scotland.

Concentrating on maternal smoking only, the rates of stillbirths were 6.7 per 1000 for smokers and 3.8 for non-smokers, and 5.8 and 3.1 respectively for infant deaths (figure 3.1).

Combining SES and smoking (while adjusting for variables like maternal age, infant sex, and differences in obstetric intervention (eg: induced labour)), it was calculated [24] that smoking accounted for around one-third of the inequalities in deaths between the least and most deprived groups [25].

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[19] There was also a category of "not known". Gray et al (2009) stated: "Our analyses show that women in this 'not known' group have a similar risk profile to smokers. This suggests either that they are smokers who choose not to declare themselves as such or else that their 'not known' status is a marker of a risk factor that has a similar magnitude to smoking" (p908).

[20] "Previous research has indicated that women may stop, reduce, and sometimes restart smoking at various points during pregnancy. Given that nicotine dependence
can make quitting smoking very difficult, attempts to maintain abstinence during pregnancy are unsurprisingly often unsuccessful. In addition, many women may be reluctant to disclose a perceived socially undesirable behaviour to their clinicians during pregnancy. As a result, recording the maternal report on smoking (yes/no) during pregnancy once at the initial booking visit will give only a snapshot (and quite possibly an unrepresentative one)" (Gray et al 2009 p908). It would have been better to have regular measurements of smoking, and by objective means (eg: nicotine metabolites in urine).

Smoking was not measured in the post-natal period, but was assumed from smoking during pregnancy. Also no information of others smoking in the house at this time.

[21] The Carstairs-Morris score (or Carstairs index) (Carstairs and Morris 1991) was used with 2001 census data. This is calculated for material disadvantage based on 4 indicators - low occupational social class, lack of car ownership, overcrowding, and male unemployment. It is relatively simple compared to other indices, but weak for rural disadvantage, where car ownership is vital.

"However, an area based score does not always correspond to individually measured socio-economic position" (Gray et al 2009 p908). The focus was upon the top and bottom quintiles, but there is a lot of variety within these groups.

[22] In the past, SES has often been categorised based on men's occupation, and Chalmers (1985) commented that "we still await the development of a satisfactory classification of women's occupations" (p231).

[23] Infant deaths were divided into first 28 days of life (neonatal deaths), and 29 days to 1 year old (post-neonatal deaths).

[24] Multiple logistic regression modelling was used. Simply, it can distinguish the amount of influence of multiple exploratory (or independent) variables (ie: smoking, socio-economic status) on outcome (or dependent) variable (eg: stillbirths).

The method of combination was based on that used by Singh-Manoux et al (2008).

[25] Raisanen et al (2014) asserted that "women with low SES are more likely to be smokers which may partly explain the association between SES and adverse perinatal outcomes" (p159). In Finland, for example, over 20% of lower SES women smoke compared to less than 5% of higher SES ones

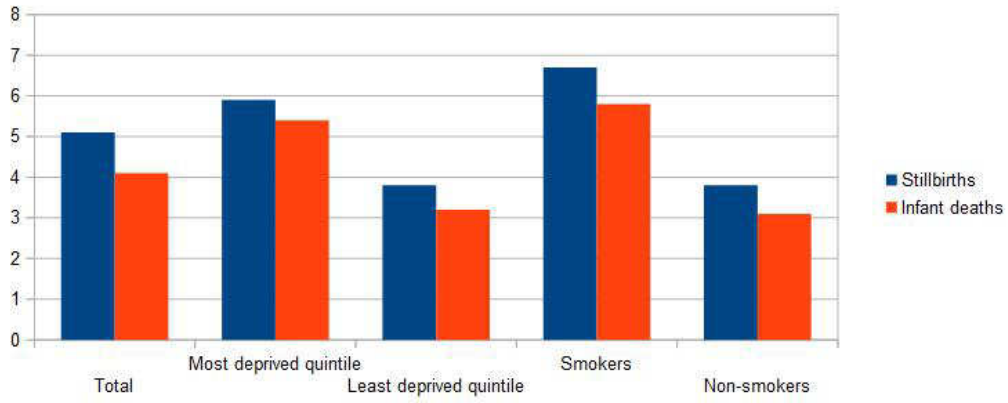

Figure 3.1 - Rates per 1000 births for stillbirths and per 1000 live births for infant deaths.

APPENDIX A - DIFFERENT STILLBIRTHS

Seaton et al (2012) investigated stillbirths and SES focusing on the different causes of the former. Data were analysed on all singleton stillbirths (defined as losses after the 24th week of gestation) in England between the beginning of 2000 and the end of 2007 from the Centre for Maternal and Child Enquiries (CMACE). Nine categories of stillbirth were distinguished [26] (eg: small for gestational age; maternal disorder; congenital anomalies). SES was based on the mother's residence at time of delivery, and the Index of Multiple Deprivation score (IMD) in 2004 for that area. The IMD 2004 score was based on seven factors (eg: income; employment; living environment) (NRU 2004).

Overall, the rate of stillbirths was 44 per 10 000 births, but the rate was over two times more in the most deprived ten percent compared to the least deprived ten percent (62 vs 29). In terms of specific causes, the SES gap was widest for antepartum haemorrhage (eg: death caused by damage to placenta) [27], unknown or unexplained reason with low birth weight [28], and congenital anomalies [29].

Seaton et al (2012) noted: "If the stillbirth rates seen in the least deprived areas were seen throughout the

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(Raisanen et al 2014) (appendix B).

[26] Based on Obstetric (Aberdeen) classification (Baird et al 1954).

[27] Risk factors for this include several close pregnancies, maternal smoking, or very young/old mother (Seaton et al 2012).

[28] Risk factors for this include psychological stress during pregnancy, smoking, and maternal age (Seaton et al 2012).

[29] "This could be due to lower rates of termination among women from deprived areas who have been identified to have a foetus with a severe anomaly" (Seaton et al 2012 p5).

population, there would be a third less stillbirths in England, nearly 900 fewer each year" (p4).

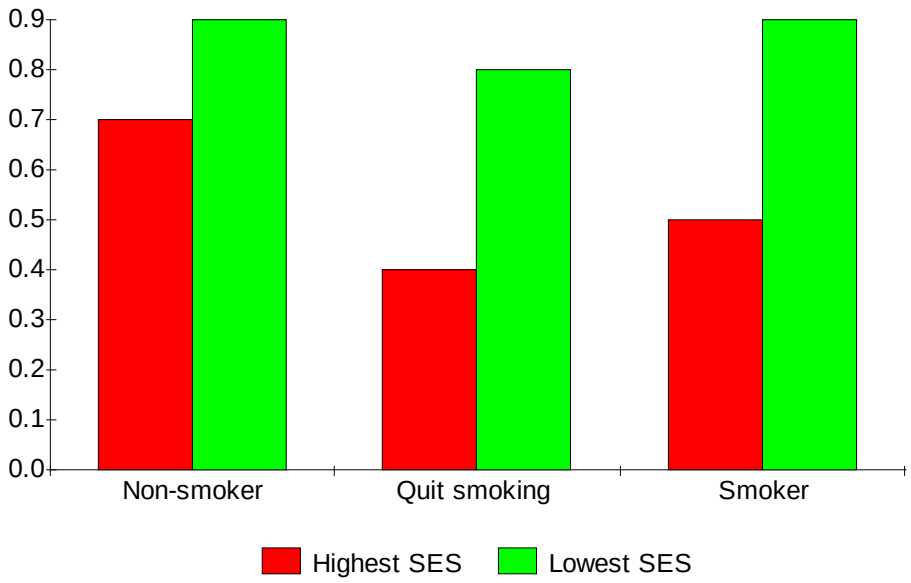
There was not a SES difference in stillbirths categorised as mechanical issues during labour (eg: breech presentation). "This suggests that this aspect of midwifery and obstetric care is not influenced by deprivation. Since such events are acute and generally not predictable prior to labour, this finding is reassuring that care in labour is not related to deprivation" (Seaton et al 2012 p6).

APPENDIX B - FINNISH STUDY

Using a large population cohort in Finland, Raisanen et al (2014) investigated maternal smoking, and women who gave up smoking early in their pregnancy. The data involved over 1.1 million singleton births between 1991 and 2010.

Continued smoking during pregnancy was a risk factor for stillbirths and other problems, and this risk was reduced by quitting early in the pregnancy.

Comparing the highest and lowest SES groups, the rate of stillbirths was 0.7% and 0.9% for non-smokers, but 0.5% and 0.9% for smokers respectively (figure 3.2). In terms of other perinatal outcomes, smoking and low SES was a risk (compared to non-smoking and high SES) for prematurity (5.7% vs 4.1%), and low birth weight (5.6% vs 2.7%), for instance.



(Data from Raisanen et al 2014 table 2)

Figure 3.2 - Percentage of stillbirths based on smoking and SES group.

REFERENCES

Baird, D et al (1954) The causes and prevention of stillbirths and first week deaths. III. A classification of deaths by clinical cause: The effect of age, parity and length of gestation on death rates by cause BJOG: An International Journal of Obstetrics and Gynaecology 61, 4, 433-448

Carstairs, V & Morris, R (1991) Deprivation and Health in Scotland Aberdeen: Aberdeen University Press

Chalmers, I (1985) Short, Black, Baird, Himsworth, and social class differences in foetal and neonatal mortality rates British Medical Journal 291, 231-232

DHSS (1980) Inequalities in Health (Working Group on Inequalities chaired by Sir Douglas Black) London: Department of Health and Social Security

Gray, R et al (2009) Contribution of smoking during pregnancy to inequalities in stillbirth and infant death in Scotland 1994-2003: Retrospective population based cohort study using hospital maternity records BMJ 339: b3754 (electronic version of article at http://www.bmj.com/content/339/bmj.b3754)

NRU (2004) The English Indices of Deprivation 2004 (Revised) London: Neighbourhood Renewal Unit, Office for the Deputy Prime Minister

Raisanen, S et al (2014) Smoking cessation in the first trimester reduces most obstetric risks, but not the risks of major congenital anomalies and admission to neonatal care: A population-based cohort study of 1 164 953 singleton pregnancies in Finland Journal of Epidemiology and Community Health 68, 159-164

Seaton, S.E et al (2012) Socio-economic inequalities in the rate of stillbirths by cause: A population-based study BMJ Open 2: e001100

Singh-Manoux, A et al (2008) The role of conventional risk factors in explaining social inequalities in coronary heart disease: The relative and absolute approaches to risk Epidemiology 19, 599-605

Thunhurst, C (1984) Social inequalities in health - the medical empire strikes back Radical Community Medicine September, 35-37

4. PROFESSIONAL BURNOUT

Maslach and Jackson (1981) defined burnout as "a psychological syndrome involving physical depletion, feelings of helplessness, negative self-concept, and negative attitudes towards work, life, and others" (Wilkinson et al 2017 p18).

Burnout as "a psychological reaction to chronic work stress" is estimated to be severe in up to 13% of workers (Ahola et al 2017) [30]. It is associated with health problems including coronary heart disease, depression, injury, and even premature death (Ahola et al 2017).

The core symptoms of burnout measured by the Maslach Burnout Inventory (MBI) (the most commonly used instrument) are emotional exhaustion [31], cynicism, and reduced professional efficacy (Schaufeli et al 1996). "The concept of burnout originated from human service professionals among whom contacts with other people constitute the majority of their tasks and can become a source of stress... In human service sector, the symptoms of burnout relate to interaction with clients (emotional exhaustion, depersonalisation, and diminished personal accomplishment)" (Ahola et al 2017 p2).

In terms of empathy and burnout, Wilkinson et al (2017) found ten relevant studies for their review. Eight studies provided evidence for a negative relationship (eg: high burnout - low empathy), while the other two studies found a small positive relationship (eg: high burnout - high empathy). The studies included outpatient departments, nursing homes, and emergency departments, and involved nurses, surgeons, and doctors.

Three types of burnout have been distinguished - individual (as the outcome of intrapersonal factors), interpersonal, and organisational (eg: mismatch between the person and the job) (Salminen et al 2017).

Key individual characteristics that predispose to burnout include conscientiousness, neuroticism, and introversion (Ahola et al 2017).

The characteristics of the work conditions that predispose for burnout include (Ahola et al 2017):

- High workload
- Role conflict and ambiguity
- High unpredictability

[30] For example, in a national survey in Finland, 2% of men and 3% of women reported severe work burnout, and a quarter of all individuals a mild version (Duodecim 2015 quoted in Salminen et al 2017).

[31] Maslach (1993) talked of "feelings of being emotionally overextended and depleted of one's emotional resources" (quoted in Portoghese et al 2017). This includes unable to provide emotional support to others (Wilkinson et al 2017).

- Lack of social support
- Perceived and/or experienced unfairness.

Workplace violence has a role to play in burnout. This is defined by the European Commission as "incidents where staff are explicitly or implicitly abused, threatened or assaulted in circumstances related to their work, including commuting to and from work involving an explicit or implicit challenge to their safety, well-being, and health" (Wynne et al 1997 quoted in Portoghese et al 2017).

For example, Winstanley and Whittington (2002) found a link between patient violence, and emotional exhaustion and cynicism by hospital staff. While the fear of future workplace violence was associated with higher burnout among homecare workers (Hanson et al 2015).

Interventions to deal with stress and burnout can be divided into three types (Ahola et al 2017):

- Primary - reduce known risk factors for all employees.

- Secondary - aimed at high risk individuals.

- Tertiary - aimed at individuals already experiencing burnout.

Ahola et al (2017) undertook a systematic review and meta-analysis of the last group. Fourteen eligible studies (with eighteen interventions) up to 2015 were found (table 4.1). The key inclusion criteria were prospective study design, and a control group (eg: no treatment; waiting list).

Fourteen interventions were individual-focused (eg: cognitive-behavioural therapy; CBT), and the rest combined individual and occupational-focused techniques (eg: meetings with workplace representatives to discuss changing the work situation).

Combining the data in the four randomised controlled trials (RCTs) for individual-focused interventions, there was a non-significant reduction in emotional exhaustion and cynicism from the interventions.

"The interventions were different in content and their effects were mixed" (Ahola et al 2017 p8). The heterogeneity between studies was seen in, for example, different measures of burnout, and varied research settings and study designs.

Ahola et al (2017) summed up: "On the basis of this systematic review, burnout is not a stable phenomenon; it diminishes in time and the majority of sufferers continue working. Burnout symptoms were not systematically alleviated by individually-focused interventions, which

are the type that have most often been evaluated. The number of studies regarding the effect of combined interventions and the effects of interventions on return to work was too modest to draw conclusions. Burnout intervention development should be continued in order to help workers recover from burnout. Research on the effects of burnout interventions would benefit from consensus guidelines of the definition and assessment of burnout" (p9).

	Gorter et al (2001)	Gunusen and Ustun (2010)
Participants	16 Dutch dentists	28 female nurses in one hospital in Turkey
Burnout measure	MBI	MBI
Intervention	3 sessions of group CBT with career counselling over six months	Cognitive coping training weekly for seven weeks
Control	Individuals who refused to participate (n = 35); self-initiative group (n = 31)	Waiting list for treatment (n = 36)
Finding	Both intervention and self-initiative groups (compared to control group at 1 month) had reduced emotional exhaustion and improved personal efficacy, but depersonalisation was unchanged	Emotional exhaustion reduced after six months for all participants in study

Table 4.1 - Example of two studies included in review by Ahola et al (2017).

REFERENCES

Ahola, K et al (2017) Interventions to alleviate burnout symptoms and to support return to work among employees with burnout: Systematic review and meta-analysis Burnout Research 4, 1-11

Gorter, R.C et al (2001) A career counselling programme for dentists: Effects on burnout Patient Education and Counselling 43, 23-30

Gunusen, N.P & Ustun, B (2010) An RCT of coping and support groups to reduce burnout among nurses International Nursing Review 57, 485-492

Hanson, G.C et al (2015) Workplace violence against homecare workers and its relationship with workers health outcomes: A cross-sectional study BMC Public Health 15, 1, 11

Maslach, C (1998) Burnout: A multi-dimensional perspective. In Schaufelli, C et al (eds) Professional Burnout: Recent Developments in Theory and Research Washington DC: Taylor & Francis

Maslach, C & Jackson, S (1981) The measurement of experienced burnout Journal of Occupational Behaviour 2, 90-113

Portoghese, I et al (2017) Fear of future violence at work and job burnout: A diary study on the role of psychological violence and job control Burnout Research 7, 36-46

Salminen, S et al (2017) Narratives of burnout and recovery from an agency perspective: A two-year longitudinal study Burnout Research 7, 1-9

Schaufeli, W.B et al (1996) Maslach Burnout Inventory - General Survey (MBI-GS). In Maslach, C et al (eds) Maslach Burnout Inventory Manual (3rd ed) Palo Alto, CA: Consulting Psychologists Press

Wilkinson, H et al (2017) Examining the relationship between burnout and empathy in healthcare professionals: A systematic review Burnout Research 6, 18-29

Winstanley, S & Whittington, R (2002) Anxiety, burnout and coping styles in general hospital staff exposed to workplace aggression: A cyclical model of burnout and vulnerability to aggression Work and Stress 16, 4, 302-315

Wynne, R et al (1997) Guidance on the Prevention of Violence At Work Luxembourg: European Commission