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# **Breaking bad and difficult news in obstetric ultrasound and sonographer burnout: Is training helpful?**

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**Judith Johnson**

Lecturer, University of Leeds and Bradford Institute for Health Research

**Jane Arezina**

Diagnostic Imaging Programme Leader, University of Leeds

**Alison McGuinness**

Consultant Sonographer, Pinderfields General Hospital

**Anne-Marie Culpan**

Project Director - Imaging Education, Health Education England

**Louise Hall**

Research Fellow, University of Leeds

## **Breaking bad and difficult news in obstetric ultrasound and sonographer burnout: Is training helpful?**

**Background:** Sonographers report high levels of burnout. For those working in obstetric ultrasound, one frequently cited stressor is the delivery of bad or difficult news. Training in news delivery may reduce sonographer stress levels, but no studies have investigated sonographer experiences of this training.

**Aims:** To investigate sonographer experiences of difficult news delivery training and preferences for training techniques, and to assess whether news delivery training is associated with lower burnout and higher wellbeing.

**Methods:** A cross-sectional survey measured occupational characteristics, news delivery training experiences and preferences, burnout (on two dimensions of exhaustion and disengagement) and general mental wellbeing.

**Results:** Ninety sonographers (85 female; mean age = 47) responded. The majority of participants thought training in difficult news delivery had improved their practice. Preferred training techniques were observation of clinical practice and receiving service-user input. Eighty per cent of participants were experiencing exhaustion, 43.3% were experiencing disengagement and 88.9% could be classed as having a minor psychiatric disorder. Having received difficult news delivery training was associated with lower levels of disengagement, even when other variables were controlled for.

**Discussion:** News delivery training is perceived to be effective by sonographers and may help to reduce sonographer burnout levels.

## **Breaking bad and difficult news in obstetric ultrasound and sonographer burnout: Is training helpful?**

Healthcare professionals are at greater risk of experiencing occupational stress and burnout than workers in other sectors, and rates of low wellbeing and burnout in healthcare staff are rising<sup>1, 2</sup>. These increases are thought to be due to a range of factors, including increasing workloads, rising patient expectations and a greater degree of administrative duties<sup>3, 4</sup>. Wellbeing can be regarded as a spectrum, with high emotional wellbeing at one end and depression and anxiety at the other<sup>5, 6</sup>. Burnout is a separate construct consisting of work-based exhaustion and disengagement from patients<sup>7-10</sup>. Exhaustion is a state where participants feel they have been overstretched by their work, whereas disengagement is characterised by a feeling of detachment from patients or work<sup>8, 9</sup>. However, both low wellbeing and elevated burnout have deleterious effects for individuals and their organisations, and are associated with impaired patient safety, lower quality care and reduced patient satisfaction<sup>11-13</sup>. Few studies have investigated poor wellbeing and burnout in sonographers, but those which have been conducted suggest rates are high and job satisfaction and sense of accomplishment are lower in sonographers than radiographers without sonography responsibilities<sup>14, 15</sup>. Countries including the UK<sup>16, 17</sup>, Australia and New Zealand<sup>18</sup> also report high sonography vacancy rates, emphasising a need to consider strategies to improve retention within the profession.

A range of factors are known to contribute to sonographer stress levels, such as high workload, having only brief amounts of time to spend with each patient and understaffing<sup>4, 16</sup>. One frequently cited stressor is the practice of delivering bad or difficult news<sup>19</sup>. This is most relevant in obstetric ultrasound, where sonographers may need to communicate news of miscarriages, stillbirths or fetal anomalies to expectant parents. Delivering news in this setting is particularly challenging; expectant parents may view the scan as a primarily social event and expect to receive information about their pregnancy immediately<sup>20</sup>. Furthermore, when expectant parents receive difficult news they go into shock, and may react with anger, silence or extreme demonstrations of sadness<sup>19, 21, 22</sup>. As sonographers can conduct as many as 26 scans in a day, they may find themselves in these challenging situations multiple times within a single shift. The role of sonographers in delivering difficult news during obstetric ultrasound varies internationally; in some countries such as the UK it is well established and in others such as Australia, it varies across organisations<sup>23</sup>. As studies suggest that a significant proportion of both expectant parents and sonographers prefer that bad news be delivered immediately by sonographers, it is possible that this practice may become more widespread in future<sup>19, 21, 23, 24</sup>.

Training in breaking bad news may help reduce sonographer burnout by reducing ambiguity about what should be said when an unexpected finding is identified<sup>19, 23</sup>. However, no studies have investigated sonographer experiences of difficult news delivery training or whether having received this type of training is in fact related to lower levels of burnout or higher wellbeing in sonographers. Furthermore, it is unclear which training practices are commonly employed and which are preferred by sonographers. This information could be important in 1) establishing the usefulness of difficult news delivery training and 2) identifying which pedagogic techniques to incorporate into news delivery training courses for sonographers.

The current study aimed to address these issues by surveying UK sonographers. The first aim was to investigate sonographer experiences of difficult news delivery training in order to understand experiences of training and which training techniques are preferred. The second aim was to investigate whether training in difficult news delivery is associated with lower burnout and higher wellbeing in sonographers.

## **Methods**

### **Design**

A cross-sectional survey design was used. The survey was hosted online and participants could respond between March and August 2017.

### **Participants and recruitment strategy**

Qualified UK sonographers were eligible. Participants were recruited via 1) emails circulated by the British Medical Ultrasound Society to its membership, 2) an advert hosted on the British Medical Ultrasound Society website, 3) Twitter and 4) an advert at the British Medical Ultrasound Society conference.

### **Ethical considerations**

The study was approved by the School of Medicine Research Ethics Committee at the University of Leeds (ref: MREC 16-033; approval date: 13-02-2017). All participants read an information sheet and completed a consent form prior to responding to the questionnaire.

### **Measures**

Demographics (age, gender), occupational characteristics and training experiences and preferences were collected together with measures of burnout and wellbeing.

#### ***Occupational characteristics***

Participants provided information regarding their disciplinary background prior to training in sonography (e.g., midwifery; radiography), the number of hours worked on average per week altogether and the number of hours worked on average in obstetric scanning in particular.

#### ***Training experiences and preferences***

Participants reported whether they had received training in difficult news delivery since they qualified (yes/no response), the number of hours of training received and whether they thought training had improved their skills in news delivery (on a 5-point scale from 1 = no effect to 5 = large effect). They also reported which of eight training techniques they had received (observation of clinical practice; observation of videos; role play/simulation; lecture-based; service-user input; group discussions; discussions with a supervisor/trainer; other) and ranked these same techniques in order of preference (from 1 'most helpful' to 8 'least helpful'). Service-user input is where individuals who have previously received bad or difficult news via ultrasound share recommendations for news delivery with groups based on their own experiences as a patient. No questions were included regarding breaking bad news training that participants may have received prior to qualifying.

#### ***Burnout***

The 16-item Oldenburg Burnout Inventory (OLBI) was used to measure burnout. The scale comprises 2 subscales (exhaustion and disengagement). Higher scores indicate

higher levels of burnout<sup>25</sup>. Scores on each subscale were categorised with 0–17.59 indicating ‘no exhaustion/disengagement’, 17.60–21.99 indicating ‘mild exhaustion/disengagement’ and 22–32 indicating ‘severe exhaustion/disengagement’<sup>26, 27</sup>.

### **Wellbeing**

The 12-item General Health Questionnaire (GHQ) was used to measure general mental wellbeing. Scores were totalled using the four-point Likert scale, which is one of two possible approaches recommended by the questionnaire’s authors<sup>28</sup>. This approach was chosen over the bi-modal scoring approach in order to provide more variability to the responses. The possible total scores range from 0 – 36, with higher scores indicating worse mental health. The scale focuses on symptoms which reflect experiences of depression (e.g., low mood) and anxiety (e.g., worry). Scores over 12 can be classified as possible cases of psychiatric illness<sup>28, 29</sup>.

### **Data preparation and analysis plan**

Missing data for each variable ranged from 0% missing (OLBI questions 2, 6, 8, 9, 10, 12 – 16; GHQ questions 1-3, 5, 6) to 5.6% missing (hours in training). Twenty-three participants (25.5%) had some missing data, however the majority (n=18) were only missing data on a single question. The highest amount of missing data by any one participant was four question responses in total. As there was only a small percentage of missing data overall, it was decided that imputing the missing data using the participants’ mean from their GHQ or burnout subscale responses, respectively, would be acceptable and pragmatic in order to maintain power to detect effects. Missing data for age, gender, training, and hours in training were imputed using the response mean.

All responses were explored for outliers and normality of distribution using boxplots. Outliers were changed to 2 standard deviations above the variable mean<sup>30</sup>. The variable ‘hours of training’ was shown to be skewed, and therefore non-parametric analyses were conducted for this variable. The remaining variables were normally distributed and thus suitable for parametric analysis.

To determine participants’ preference for the type of training and the most common training received, descriptive statistics were explored. Bivariate correlations were conducted to determine whether the variables were significantly correlated and in which direction. Significant correlations were then entered into multiple regressions using the Enter method, controlling for age, gender, and hours working per week.

## **Results**

### **Participant characteristics**

Ninety sonographers responded to the survey. Participant characteristics and descriptive statistics for all variables prior to missing data imputation are reported in Table 1. These suggested that 80 (88.9%) of participants would be classed as having a possible psychiatric disorder such as minor anxiety or depression, 72 (80%) of participants would be classed as suffering from mild (n = 37; 41.1%) or severe (n = 35; 38.9%) exhaustion, and 39 (43.3%) would be classed as suffering from mild (n= 32; 35.6%) or severe (n = 7; 7.8%) disengagement.

Table 1

*Descriptive statistics (raw data)*

	Mean (Range)	Frequencies (%)
Age <sup>1</sup>	47 (25-62)	
Gender <sup>1</sup>		Female: 85 (94.4%) Male: 3 (3.4%)
<hr/>		
Occupational		
Job role <sup>2</sup>		Radiography: 79 (87.8%) Medicine: 1 (1.1%) Midwifery: 8 (8.9%) Other: 2 (2.2%)
Hours working p/week <sup>3</sup>	31.65 (15 - 60)	
Hours working in obstetric scanning p/week <sup>3</sup>	17.98 (0 - 52)	
<hr/>		
Wellbeing and burnout		
GHQ <sup>4</sup>	17.72 (5 - 34)	
OLBI (Burnout total) <sup>2</sup>	37.07 (21 - 50.74)	
OLBI: Exhaustion <sup>2</sup>	20.54 (11 - 31)	
OLBI: Disengagement <sup>2</sup>	16.73 (10 - 24)	

<sup>1</sup>n = 88; <sup>2</sup>n = 90; <sup>3</sup>n = 87; <sup>4</sup>n = 85; GHQ = General Health Questionnaire; OLBI = Oldenburg Burnout Inventory.

**Aim 1: What are sonographers' experiences and preferences for difficult news delivery training?**

The majority of participants (n = 68; 75.6%) had received training in delivering difficult news since they had qualified. The number of hours participants had received in training ranged from 0 to 67, with a mean of 10. The majority felt that the training had a positive effect on improving their skills in delivering difficult news; on a Likert scale from '1' ('no effect') to '5' ('large effect'), 15 (16.7%) responded '5', 28 (31.1%) responded '4', 19 (21.1%) responded '3', 8 (8.9%) responded '2' and 7 (7.8%) responded '1'.

The most common training techniques received by participants were lectures and group discussions (Table 2). Participants stated that they would find training that entailed observation of clinical practice and service-user input most helpful (Table 2).

Table 2  
*Training preferences (most helpful) in percentages*

	% of participants who have received technique	Order of preference (%)							
		1	2	3	4	5	6	7	8
Observation of clinical practice	25.6	45.6	8.9	8.9	6.7	3.3	4.4	6.7	7.8
Observation of videos	14.4	11.1	10	3.3	11.1	6.7	8.9	7.8	7.8
Role play/simulation	46.7	6.7	11.1	11.1	11.1	7.8	7.8	8.9	12.2
Lecture-based	61.1	4.4	12.2	15.6	15.6	12.2	10	5.6	1.1
Service-user input	13.3	16.7	10	12.2	10	6.7	10	3.3	2.2
Group discussions	56.7	11.1	16.7	18.9	10	7.8	6.7	6.7	1.1
Discussions with a supervisor/trainer	33.3	6.7	10	14.4	7.8	7.8	11.1	14.4	5.6
Other	1.1	4.4	2.2	3.3	0	1.1	1.1	2.2	18.9

1 = Most helpful, 8 = Least helpful

**Aim 2: Is difficult news delivery training associated with sonographer wellbeing and burnout?**

Bivariate correlations for all variables are reported in Table 3, with significant correlations flagged. Spearman's correlations indicated significant associations between more hours of training with greater age ( $r_s = .269, p = .010$ ), lower disengagement ( $r_s = -.251, p = .017$ ), lower exhaustion ( $r_s = -.227, p = .031$ ), and lower total burnout score ( $r_s = -.246, p = .019$ ).

Table 3

Correlation matrix for key variables ( $n = 90$ )

	Any training (yes/no)	Hours training	GHQ	OLBI	OLBI: D	OLBI: E	Age	Gender
Hours training	.549**	-						
GHQ	-.007	-.082	-					
OLBI	-.181	-.246*	.459**	-				
OLBI: D	-.242*	-.251*	.371**	.890**	-			
OLBI: E	-.124	-.227*	.447**	.893**	.627**	-		
Age	.217*	.269*	.002	-.168	-.205	-.045	-	
Gender	.044	.008	.180	.199	.134	.227*	.100	-
Hours work p/w	-.055	-.148	.066	.118	.053	.100	-.081	-.120

\*  $p = .05$ ; \*\* $p = .01$ ; GHQ = General Health Questionnaire; OLBI = Oldenburg Burnout Inventory; OLBI:D = Disengagement subscale of the Oldenburg Burnout Inventory; Oldenburg: E = Exhaustion subscale of the Oldenburg Burnout Inventory.

Point-biserial correlations indicated significant associations between receiving any news delivery training (compared with no training) with greater age ( $r_{pb} = .217, p = .040$ ) and lower disengagement scores ( $r_{pb} = -.242, p = .022$ ).

Four separate regressions were run to determine whether these significant associations were maintained when other relevant variables were controlled for. Specifically, regressions were run to determine whether the number of hours in training explained the variance in disengagement, exhaustion and total burnout, and whether receiving any training (compared with no training) was associated with disengagement when controlling for age, gender, and hours working per week. Training and hours in training displayed high multicollinearity. Including predictor variables that have high multicollinearity could result in large standard errors, distort model estimation, and therefore reduce predictive accuracy of the model<sup>31</sup>. Because of this, these variables were input as predictor variables into separate regressions for each outcome variable.

### **Training and burnout**

A multiple regression was conducted to determine whether receiving any training in delivering bad news was associated with lower levels of disengagement. This model explained a significant amount of the variance in disengagement ( $F(4, 85) = 2.643, p = .039, R^2 = .111, R^2_{adjusted} = .069$ ). Receiving any training made a significant, independent contribution to the model, ( $\beta = -.209, p = .05$ ). This suggested that sonographers who had received *any* training in news delivery reported lower levels of disengagement than sonographers who had received *no* training, and that this finding was maintained even

when other relevant variables were accounted for (age, gender, and hours working per week).

A second multiple regression was conducted to determine whether the number of hours spent in training on delivering bad news was associated with lower levels of disengagement. This model did not explain a significant amount of the variance in disengagement, although a trend was found in this direction ( $F(4, 85) = 2.44, p = .053, R^2 = .103, R^2_{\text{adjusted}} = .061$ ). This suggested that sonographers who had received a greater number of hours in training did not report significantly lower levels of disengagement than those who had received fewer hours once other relevant variables were accounted for (age, gender, and hours working per week;  $\beta = -.192, p = .077$ ).

A third multiple regression was conducted to determine whether the number of hours spent in training on delivering bad news was associated with lower levels of exhaustion. This model did not explain a significant amount of the variance in exhaustion, but a trend in this direction was evident ( $F(4, 85) = 2.470, p = .051, R^2 = .104, R^2_{\text{adjusted}} = .062$ ). Overall, this suggested that sonographers who received a greater number of hours in training did not report significantly lower levels of exhaustion than sonographers who had received fewer hours in training, once other relevant variables were accounted for (age, gender, and hours working per week;  $\beta = -.189, p = .082$ ).

A final multiple regression was conducted to determine whether the number of hours spent in training on delivering bad news was associated with lower levels of total burnout. This model did explain a significant amount of the variance in burnout ( $F(4, 85) = 3.072, p = .02, R^2 = .126, R^2_{\text{adjusted}} = .085$ ), indicating that receiving more hours in training was significantly associated with lower levels of burnout overall, when age, gender, and hours working per week were also included as predictor variables. However, number of hours in training did not making a significant independent contribution to the model when age, gender and hours working per week were controlled for ( $\beta = -.193, p = .072$ ). Overall, this suggests that receiving a great number of hours of training is not significantly associated with levels of burnout, once other relevant factors have been accounted for (age, gender, and hours working per week).

## Discussion

This study reported on sonographer experiences of difficult news delivery training, their preference for training techniques and whether receiving training in this area was associated with lower burnout or higher wellbeing. The majority of respondents had received news delivery training since they had qualified and felt this improved their practice. The most common training techniques were lectures and group discussions, but the most preferred learning tools were observation of clinical practice and receiving service-user input. Burnout rates in the group were high, with a majority of participants reporting mild or severe exhaustion or disengagement. Furthermore, nearly 9 in 10 participants would be classed as having a possible psychiatric disorder such as mild depression or anxiety. Having received training in difficult news delivery was not associated with higher wellbeing, but there was mixed evidence for an association with lower burnout. In particular, having received any training (compared with no training) was associated with lower disengagement, even when the impact of related variables such as age was accounted for.

This is the first study to investigate experiences of news delivery training in sonographers. The importance of communication in healthcare is becoming increasingly recognised; news delivery training is recommended in the UK National Institute for Health and Care Excellent (NICE) guidelines for miscarriage<sup>32</sup> and the need for good communication more broadly is emphasised by U.S. Preventive Task Force guidelines in areas such as cancer screening<sup>33,34</sup>. However, this is the first study to explore whether news delivery training is perceived to be helpful and which training practices are preferred by sonographers. Our finding that most participants thought training was effective in improving their practice is consistent with results from a recent meta-analysis of news delivery training interventions in doctors<sup>35</sup>. This meta-analysis found that training interventions improved both observer-rated news delivery skills and physician confidence in this area. The present results suggest such interventions may be effective in sonographers, but this will need to be confirmed by further research.

It should be noted though, that a significant minority of participants did not find the training they received particularly helpful. One explanation for this may lie in a mismatch between commonly used training techniques and those which are preferred. The most preferred techniques were clinical observation and receiving service-user input, for example in the form of service users sharing their own experiences and preferences. In contrast, the most commonly experienced training methods were lectures and group discussions. Minimal research has investigated which techniques are most effective for training healthcare professionals in news delivery; in a recent meta-analysis of breaking bad news interventions in doctors there was not enough data available to compare the effectiveness of interventions based on the training techniques they used<sup>35</sup>. The present findings highlight the need to carefully consider training methods when developing news delivery training courses, and suggest experiences of observing real news delivery events and speaking with patients are preferred by sonographers.

Burnout levels in our group were high. Few studies have investigated burnout in sonographers and this is the first study to report burnout levels in UK sonographers. These findings are consistent with a recent study in Australia and New Zealand<sup>14</sup>, which also reported high burnout levels, and extend this literature in two ways. First, we also found alarmingly high scores on a measure of general mental wellbeing, indicating that a majority of participants would additionally be categorised as suffering from a possible minor psychiatric disorder such as depression or anxiety. Burnout, depression and anxiety are known causes of healthcare staff turnover<sup>36-38</sup>; tackling these could be one route to reducing high sonography vacancy rates<sup>16,18</sup>. Second, our findings suggest that providing news delivery training may be one way to reduce burnout. News delivery training was associated with lower disengagement, exhaustion and overall burnout scores. The association between having received news delivery training and lower disengagement was particularly robust, and remained even when other related variables such as age and hours worked per week were controlled for. This finding is consistent with the results of a recent meta-analysis which suggested that occupational training in general is an effective way of reducing burnout in mental healthcare staff<sup>39</sup>, and extends this by suggesting that news delivery training in particular may be useful for reducing burnout in sonographers.

### **Strengths and weaknesses**

Our study benefited from the use of validated questionnaires to measure the concepts of burnout and mental wellbeing. Both measures have been used extensively in healthcare staff groups and provide standardised cut-off scores to categorise responses. Our study also benefited from the use of rigorous statistical analysis which allowed missing data to be managed and related variables to be controlled for in the inferential analyses.

Our study was limited by its cross-sectional nature which prevented conclusions regarding causality to be drawn. Our sample size was relatively small and it is possible that the trends we identified which did not reach statistical significance may have reached significance with a larger sample. As the sample was not stratified, it is possible there was response bias, with sonographers experiencing greater levels of burnout more likely to participate. However, our sample size is comparable to previous similar studies in sonographers<sup>14</sup>, and the main aim of our study was to assess the relationships between these and training in difficult news delivery. Inferential statistics such as these are more robust to the influence of response bias. Future research could seek to explore these findings in a larger, stratified sample. It should also be noted that our sample was 94% female, which is higher than the number estimated to comprise the overall sonography workforce in the UK (around 80%)<sup>17</sup> which may also limit our results.

### **Implications for policy and future research**

The role of sonographers in delivering difficult news varies across countries and organisations, but it is possible that there may be an increasing requirement for sonographers to undertake this practice in future. Our results suggest that when this is the case, providing news delivery training may help sonographers to undertake this role more confidently. Training in news delivery may also help to reduce sonographer burnout levels. Training courses should seek to incorporate the opportunity to observe clinical practice and service user input. Future research is needed to test the effectiveness of news delivery interventions in sonographers, and to identify which training techniques in particular are most useful. Sonographers come from a variety of professional backgrounds including medicine, midwifery and radiography, and future research may also be needed to explore whether tailored training is needed for these different groups.

### **Conclusion**

This study sought to investigate experiences and preferences for difficult news delivery training in sonographers. Results suggested that most sonographers thought training was effective in improving their skills in difficult news delivery. The most used training techniques were lectures and group discussions, but sonographers' most preferred training techniques were observation of clinical practice and receiving service-user input. Having received training was associated with lower levels of disengagement. These findings suggest that training in difficult news delivery is valued by sonographers and may help to reduce sonographer stress levels.

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