Abstract

It has been found that practitioners/ clinicians/ therapeutic staff often have low engagement and understanding of children's routine outcomes. This small scale descriptive study aimed to test this at a children's social care organisation. The aims of the study were to: 1) explore respondents' levels of engagement and understanding with outcomes, and 2.) explore how engagement and understanding can be improved through data presentation to develop accessibility of outcomes.

The study focused on the presentation of outcomes data to consider engagement and understanding and how to improve them. To explore this, I conducted a survey on therapeutic staff at a children's social care provider which has used outcomes measures for 8 years. The survey included: quiz style questions to test understanding; choice questions to test preference; and open ended questions to explore choices. The results were analysed through both thematic analysis on the open ended questions and a frequency analysis to present levels of understanding and preference.

Though other literature and studies and claimed a lack of understanding and engagement around children's outcomes, this organisation have presented a high level of both. The general engagement and understanding of outcomes found here may be due to the focused training and integration of outcomes at the organisation. In terms of presentation styles, line graphs and bar graphs seemed most preferable with features of: clarity, use of colour and category coding, and ability to see trends. Furthermore the respondents valued information dashboards and discussions with researchers/ clinicians on outcomes data to support accessibility.

Key Practitioner Message

What is known?

-Routine outcomes have been widely accepted to support understanding around children's progress and intervention effectiveness, however attitudes towards outcomes can often be negative, with users showing low engagement or understanding about outcomes data

What is new?

-Communication and reporting about a child's progress can be improved through: discussions with researchers about the data, using data dashboards and presenting data in a more engaging and understandable ways.

What is significant for clinical practice?

-Practitioners, clinicians and therapeutic staff need to integrate outcomes data into the everyday clinical work to gain tangible and accessible evidence of children's progress and intervention effectiveness in care or a mental health clinic setting.

-This integration can be improved through the insights and tips presented in the findings.

Introduction

Within the children in care sector and child mental health services, outcomes measures have been employed to: evaluate patient/ child wellbeing and progress and assess intervention effectiveness, in some form for over 150 years (Macdonald & Fugard, 2015). Historically however, there seems some resistance to them, especially from practitioners, and there has been on and off engagement and even hostility at an individual and cultural level (Macdonald & Fugard, 2015). Based on the literature on this topic, there is seen to be a lack of engagement or understanding around outcomes resulting in them not being accessible to practitioners, clinicians and therapeutic staff. With increasing significance and recommendations given about outcomes measures in clinical and policy contexts (Bazalgette et al., 2015; DfE & DH, 2017; Milich et al., 2017; NHS England & NHS Improvement, 2016; Ryder et al., 2017) there is growing need to understand and engage with outcomes measures especially from those are working with the children.

This small scale descriptive study sets out to test the presence of these negative attitudes, lack of engagement and low understanding by exploring the perspectives of therapeutic staff[1] at a children's social care provider which has used outcomes measures for 8 years. A survey was conducted focusing on data from the Strengths and Difficulties Questionnaire (SDQ). The aims of the study were to explore and analyse 1.) What the respondents' levels of engagement and understanding are with outcomes measures, and 2.) How engagement and understanding can be improved through data presentation to develop accessibility of outcomes measures.

Using arguments around visualisation and data presentation leading to more engagement and understanding by the reader (Evergreen, 2017; Knaflic, 2015; Krum,

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[1] Clinically trained staff that use or look at children's outcomes data to evaluate child progress and intervention effectiveness e.g: Key workers, child psychotherapeutic councillors, group analysts and directors.

2013; Smiciklas, 2012), the study will be focusing on the presentation of outcomes data to consider engagement and understanding and how to improve them. These ideas are being considered together on the basis that the concepts of engagement and understanding are linked and can together make data, in this case outcomes data, more accessible (Better Care Fund, 2015; Evergreen, 2017; Moon, 2008; NHS England & NHS Improvement, 2016; Norman, et al., 2014).

Literature Review

Attitudes towards outcomes

Outcome measures are significant, if engaged with well, as they can inform on a child's wellbeing progress, direct practice and inform clinicians on the effectiveness of interventions (Kerstsen et al., 2016; NHS England & NHS Improvement, 2016; Norman et al., 2014). However, if they are perceived as a form filling burden with no meaning to the clinical or therapeutic work, their full potential would not be realised.

Despite demonstrations of the use of outcome measures supporting better practice (Coombs et al., 2009; Laslavia & Ruggeri, 2007), there is still resistance, negativity and ambivalence by practitioners and clinicians which is problem for the effectiveness of the measures and their significance. Studies on practitioner/ clinician perspectives of outcomes present: feeling they are a waste of time, not engaging, a burden, a low perceived advantage, not relevant, difficult to understand and a form of unwanted self evaluation (Callaly & Hallebone, 2001;. Coombs, Deane & Willis,2009; CORC, 2005; Hatfield & Ogles, 2004; Walter et al., 1998; Norman, et al., 2014).

One can argue that the way in which outcomes are presented are not very engaging and can be confusing. For example, a widely seen representation is the annual Looked after Children England reports produced by the Department for Education. Considering the

SDQ data presented over the last 3 years (DfE, 2016; DfE, 2017; DfE, 2018) they are arguably difficult to engage with and take a while to understand. Apart from the 2017 graph, they do not include category information or ranges, only averages or single scores. Granted they explain more in the accompanying texts, but based on the graphs alone one could argue that they are not very easy to understand especially if you have little prior knowledge about the SDQs.

If data was presented in a more insightful, interesting and appealing way, developing accessibility, this could improve attitudes and the experience for both the users and the patients (Better Care Fund, (2015; Greenhalgh et al., 1998). Furthermore, if users were trained in reading data or fed back the data effectively, this may also improve attitudes (Coombs et al., 2009; Macdonald & Fugard; 2015; NHS England & NHS Improvement, 2016). I would argue that these feelings of resistance or ambivalence can be combated through engaging the users and helping them to understand outcomes both through training and asking for suggestions on how they want it to be presented or reported to them.

Over the last 3 years, the sampled organisation's strategy has been to integrate the outcomes data into their clinical work through training, and regular reporting and feedback. They have attempted to feed back the data in more inclusive and user-friendly ways to support staff understanding. It is possible therefore, that unlike the services and literature mentioned above, this organisation may have better levels of engagement and understanding around outcomes measures. Based on the results of the survey, we could compare if this is true due to a difference in culture and training.

Accessibility through data

Engagement with data is argued to be linked to graphical and visual aspects such as colour, orientation, motion and alignment which improve the ability to recall information

(Evergreen, 2017). "By visually organising and emphasising information, graphic design makes it more accessible, increasing the reader's capacity to engage with words and data…the more engagement the more that passes through the working memory" (Evergreen, 2017: 27-28). Of course, this may not always be the case, and one could argue that some people are more engaged with seeing plain numbers over a graph which might be off putting or distracting.

The appropriate presentation of data, in any form, is extremely important in conveying its message across correctly. As can be seen in Huff (1954)'s 'how to lie with statistics' we can see how easy it is to distort information based on the type of data presentation. Data presentation that is picked inappropriately or is misleading is not only confusing to the reader, but it abuses the message of the data. And therefore, with something like children's outcomes data and their progress which needs to be obvious at face value, presentation and delivery is vital and should accurately present the information.

Before creating visual data, Knaflic (2015) suggests to consider the audience and their needs. The audience here is therapeutic staff, I want them to: be able to look at a set of outcomes data and be able to see if a child (or a group) is improving, getting worse, making no change and making reliable changes. Therapeutic staffs have a demanding job and therefore they need to be able to easily access outcomes data to gain an understanding of a child's progress and how their intervention is working. What we are finding out in this study is which form of communication do the therapeutic staffs understand and prefer best to get to the point of the outcomes data.

Presentation forms

The study is looking to see which presentation form is most accessible to the sample. Considering literature on presentation forms we see can various strengths and weaknesses with all types but want to find out which works the best for the purposes of

correctly communicating outcomes in an engaging manner. Certain forms are seen to be quite 'popular' such as infographics, pie charts or stacked graphs (Klass, 2012; Krum, 2013; Moon, 2009). These forms can however hide data through distortion or unclear angles (Moon, 2009). Klass (2012: 90) argues that this goes for that whole family of "pretty useless cousins: the doughnut, cylinders, cones, radar and pyramid charts". Though infographics seem to look engaging and accessible, there are some complications when considering the data itself. Wickham (2013) argues that too much time and effort goes into making infographics look good and decorative and focus is given to graphical elements generated from individual points rather than a whole data set. Therefore the full information may not always be present.

In an attempt to give a bird's eye view of key performance indicators dashboards have become very popular (Evergreen, 2017; Knaflic, 2015; Moon, 2009; The Better Care Fund, 2015). This is because they look very engaging with a range of graphs or infographics and they allow room for brief narrative, for example text boxes, which aren't burdensome to read (Evergreen, 2017). Other social/ health care organisations have started using dashboards and received positive feedback from users on "access to information; communication and information sharing; staff awareness; data quality…" (NHS England & NHS Improvement, 2016: 11). However, while looking organised and seemingly having a fuller picture there is little space for context or disclosure on any data issues involved (Evergreen, 2017). With these presentation types there is an attempt to make the data look inviting; however the message should not be lost in trying to make it 'pretty'. Evergreen (2017) argues that 'weak' data will not engage the reader or improve their ability to recall the information accurately; if the information presentation is effective and strong it should improve comprehension as that is the main goal.

Tables on the other hand are fairly clear and straightforward to read, but often an unpopular or off-putting choice to an audience (Moon, 2009). It is also difficult to

immediately see a pattern as you might with a graph; the table would need more focus. Moon (2009) and Knaflic (2015) suggest ways in which to make tables more accessible, this is through: using minimal graphics or borders to let the numbers come through and to highlight significant figures within the tables.

Generally presenting data with a time series works better with a graph, rather than a table, particularly a line graph as trends and changes can be communicated better to the reader (Moon, 2009). Graphs can look interesting and informative, but they need editing, for example the default graphs on excel often need a lot of playing around with (Moon, 2009).

Methodology

To explore the 2 main questions, the study required a mix of quiz style questions to test understanding and both closed and open ended questions to explore opinions and preferences around engagement. The most efficient method which allows reach as well as both qualitative and quantitative data analysis will be an online survey.

Preference of presentation type was examined by giving respondents options on which presentation style they prefer to look at/ are engaged with/ which helps them to understand the information better. This was simply a frequency test to see how many respondents prefer certain types of presentation. Based on the literature, 4 base presentations were created (FIGURE 1.1).
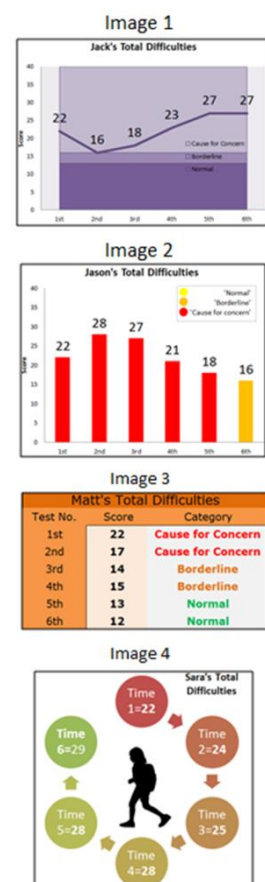

Figure 1.1: 4 base presentation types

Line and bar graphs were added to see trends in a time series (Moon, 2009: Klass, 2012). Based on what was learnt from the CODE line graphs and DFE bar charts, the presentations needed added information such as categories and data labels; these features were emphasised with shading on image 1 and bold colours on image 2. A table style presentation was included as it would be the most different style in comparison to the graphs and it would be interesting to see whether respondents are drawn to it or if it is an unpopular choice. Using the advice from Moon (2009) it was made more engaging with some colour and taking out borders to make the numbers pop out. Again colour coded categories were added. Lastly, the infographic style presentation was added to represent the perceived popularity of infographics (Smiciklas, 2012). Using the idea of story telling to connect the reader (Krum, 2013) the infographic was created with the child as the focus and their scores circling them to present a process or a journey. The survey does include other data presentation types to add some more options to test engagement with other forms of data. This includes pie charts, dashboards and other infographics so we can test their perceived popularity (Moon, 2009).

To test understanding, a series of quiz style questions were created. The aim was to see if respondents can look at a set of data in any form and state if a child is improving, deteriorating or has made no change. This required quiz type questions where respondents were asked to pick the right answer (FIGURE 1.2).
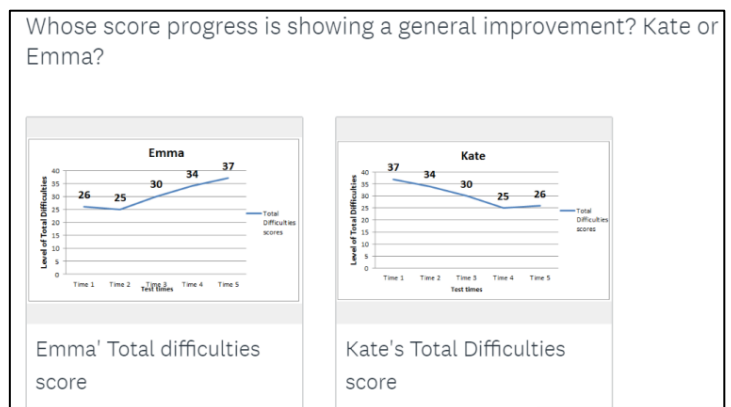

Figure 1.2: quiz example

The survey also included further questions asking respondents: what their levels of engagement with outcomes are, and how well they believe they understand outcomes outputs.

Analysis

The Qualitative data that was collected was analysed using methods such as thematic analysis. All the open response answers around why respondents prefer or are engaged with a presentation were extracted and then guided by Braun & Clarke (2006) the thematic analysis process was conducted by reading through the responses a few times over, coding the data by picking out interesting or seemingly significant points and then relating these to overarching themes.

A frequency analysis was conducted on the quiz style questions and preference of style questions to see what percentage of the respondents answered in certain ways as a method of exploring the aims.

Sample

The sample for this case study was all therapeutic staff at a children's social care organisation, referring to all staff that examine the children's progress/ wellbeing and intervention effectiveness by looking at outcomes. This includes child psychotherapists, group analysts, care workers, link workers, home directors, clinical case administrators and senior directors/ trustees- all these members consider children's outcomes measures from a frequent to annual basis. This made up a sample of 155 who were sent a Survey Monkey link.

Limitations and Ethical Concerns

Ethical approval to conduct the research and contact the staff was granted by the organisations ethics committee. Potential ethical concerns are around the respondents feeling evaluated on their knowledge of outcomes. However all respondents are anonymised and the survey was made short to avoid feeling overwhelmed.

It should be noted that this case study is only looking at one organisation that will have its own culture and attitudes around outcomes and therefore may not be completely generalizable/ reflective of the wider sector. But it can allow a window into this subject of outcomes accessibility as an initial exploration.

There are inevitable issues around non-response and item non-response as well as measurement error (Sue & Ritter, 2012). Response rates can vary and for online surveys this can range from 20-30% (Fincham, 2008; Nulty, 2008; Nardi, 2018). Non-response bias is one of the main concerns here which can affect the reliability and validity of the study (Fincham, 2008). A low response rate of 20-30% is anticipated as many of the therapeutic staff do not get a lot of time at computers while on shift and if they are, they are training or have other work-related priorities. Also it is important to be aware that results may be skewed as potentially only those who are engaged or disengaged will respond.

Results

There were 59 respondents resulting in a 38% response rate which was higher than anticipated. Many of the respondents stated they interact with both the children and data regularly and the majority use the data for 'clinical observations and discussion about a child/ group' (TABLES 1.1 & 1.2, CHART 1).

Approximately how often do you currently have contact with the children in the service?	% of respondents
everyday	46
once a week - a few times a week	16
once a month	4
once a term/ every 6 months	8
once a year	12
never	14

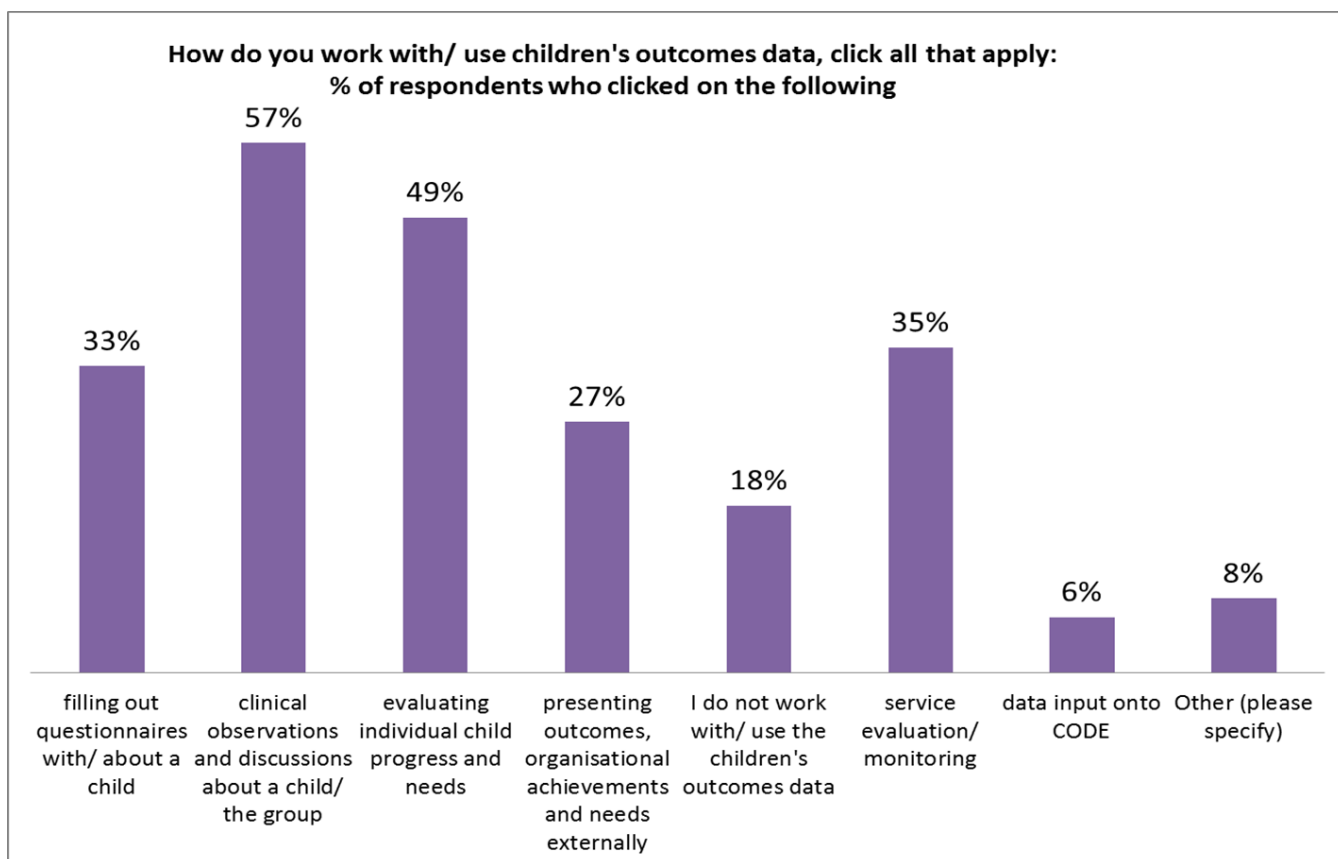Table 1.1 approximately how often do you currently have contact with the children in the service

How do you work with/ use children's outcomes data, click all that apply:
% of respondents who clicked on the following

- filling out questionnaires with/ about a child: 33%
- clinical observations and discussions about a child/ the group: 57%
- evaluating individual child progress and needs: 49%
- presenting outcomes, organisational achievements and needs externally: 27%
- I do not work with/ use the children's outcomes data: 18%
- service evaluation/ monitoring: 35%
- data input onto CODE: 6%
- Other (please specify): 8%

Chart 1: How do you work with or use children's outcomes data

Engagement

54% of the respondent claimed to have a high level of interest and engagement with outcomes (Table 1.3), with a high number of the opinion that they are: "… insightful in understanding a child's progress" (73%), "They are a useful tool in our work" (73%), and "They help me understand a child's/children's progress well" (57%) (TABLE 1.4). A very small number stated they do not find them helpful, they are confusing or hard understand or that they are burdensome (all under 6%).

How interested/ engaged are you with children's outcomes data?	% of respondents
1- I am not interested/ not engaged with children's outcomes data	0
2- unspecified	4
3- I am indifferent to children's outcomes data	10
4- unspecified	32
5- I am very interested/ engaged in children's outcomes data	54

Table 1.3: How interested/ engaged are you with children's outcomes data

What are your opinions on children's outcomes measures? click all that apply	% of respondents
I don't understand the child's/ children's progress when using them	2
They are unhelpful	4
They are not meaningful	0
They are confusing	6
They are a chore/ burden	4
It is not a method I would use to examine a child's progress	4
They are counter productive	0
They are insightful in understanding a child's progress	73
They are a useful tool in our work	73
They help me understand a child's/children's progress well	57
They are straightforward to understand	24
They provide a reflective space with the child	37
They are good for self reflection/ evaluation as a practitioner/ service	47
I have no opinions on them	10
Other (please specify)	6

Table 1.4: what are your opinions on children's outcomes measures

Understanding

Respondents were asked about their perceived ability to correctly read outcomes data (TABLE 1.5). A high level claimed they could (70%), 6% felt they could not read outcomes and 24% were unsure.

Based on the results in TABLE 2.1, the respondents had a high level of understanding and ability to read the outcomes data with majority of the questions receiving over 90% correct answers. All respondents that felt they could not read outcomes did answer correctly. However, it seems those who were unsure of their ability had a higher proportion answering incorrectly (TABLE 2.2).

Can you read a child's outcomes data and recognise improvement, no change or deterioration in progress?	% of respondents
I don't know	24
No	6
Yes	70

Table 1.5: Can you read a child's outcomes data and recognise improvement, no change, or deterioration

Questions	Amount of respondents who answered correctly
Question 14: "Here are 2 children's SDQ scores showing their Total Difficulties progress from their 1st to 5th test. Whose score progress is showing a general improvement? Kate or Emma?"	90%
Question 15 "Has Beth's score: improved/ stayed the same/ deteriorated?"	100%
Question 18 "who has improved more?"	96%
Question 19: "who has more total difficulties in the latest test?"	98%
Question 20: "who has a better score in their last test?"	96%
Question 21: "who has made a reliable change?"	96%
Question 23: Which child has:	
a. Improved the most	88%
b. Made no change	100%
c. Deteriorated the most	92%
d. Made a reliable change	68%

Table 2.1: ability to correctly read questions

		Respondents answering question:	
		Incorrectly	Correctly
		10%	90%
Question: Can you read a child's outcomes data and recognise improvement, no change or a deterioration in progress	Yes	3%	97%
	No	0%	100%
	I don't know	**33%**	**67%**

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.032[a]	2	.011
Likelihood Ratio	7.839	2	.020
Linear-by-Linear Association	7.885	1	.005
N of Valid Cases	48		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .31.

Table 2.2: association between ability to correctly read and perceived ability to read outcomes

The most popular choice of presentation style was Image 1 with (50%) (TABLE 3.1). Reasons for choosing Image 1were themed around: 'Able to see a pattern or progression' and 'Presentation is simple to understand/ read'. Some Quote examples were: "I can see the trend easily and it has categories", "clear from first glance" or "can

Presentation type	Image 1	Image 2	Image 3	Image 4
Number of participants choosing respective image	24	12	10	2
% of participants choosing respective image	50%	25%	21%	4%
Themes arising from responses from the question: *"Why do you like the presentation type you have picked?"* Able to see a pattern or progression	54%		10%	
Presentation is simple to understand/ read	50%	75%	80%	
The colours are helpful in understanding data	4%	25%	10%	
Able to see a 'fuller image'	8%		10%	50%
Able to relate scores to each other and to their respective categories	25%	25%	30%	
The visual aspect of the data helps think about the child involved/ keeping the child in mind	21%		10%	50%
General preference of linear presentations	4%			
Speed at which progress is understood	4%	17%	20%	
Allows a consideration of external agencies	4%			
The visual aspect of the presentaion allows the scores to be compared easily		33%		
General preference of bar charts		8%		50%
General preference of numerical forms of data presentation			10%	
Feeling that the graphic is interesting	4%			50%
Presentation allows a space for reflection	4%			50%

Table 3.1: why do you like the presentation picked

easily see dips and rises." Majority of respondents who picked Image 2 (the 2nd most popular) reasoned it was the simplest to understand/ read and the visual aspect around colours and categories helped understanding. Examples of comments were: "Easy visually accessible", "Gives immediate visual representation, and the colours are clear." Throughout the choice questions, the most predominant theme, regardless of what presentation type was picked, was the theme of "Presentation is simple to understand/ read". In addition to this, the themes 'Able to relate scores to each other and to their respective categories' and 'Able to see a pattern or progression' also emerged in analysis for many of the presentation types.

Accessibility in practice

Respondents were asked which presentation type was used to inform their answer to a quiz style question (TABLE 3.5/ 3.6). The highest proportion of respondents referred to at least option 'A'; which was also the most popular image choice previously (TABLE 3.1).

Which form of presentation did you use to inform your answer above?		Respondents who referred to at least one of the following:
	A	72%
	B	56%
	C	10%
	D	42%

Table 3.5 which presentation informed your answer

Which form of presentation did you use to inform your answer above?	A	B	C	D
% of participants choosing respective image	72%	56%	10%	42%
Able to see a pattern or progression	35%	13%		
Presentation is simple to understand/ read	57%	56%	50%	50%
The colours are helpful in understanding data	9%	36%	50%	10%
Able to see a 'fuller image'	4%	2%		
Able to relate scores to each other and to their respective categories		7%		20%
The visual aspect of the data helps think about the child involved/ keeping the child in mind		7%		
General preference of linear presentations	22%			
Speed at which progress is understood	9%	11%		
Feeling that the graphic is interesting			50%	
The visual aspect of the presentaion allows the scores to be compared easily		4%		
General preference of bar charts	4%	7%		
General preference of numerical forms of data presentation		2%		20%

(Left header column spanning rows: Themes arising from the question "which presentation did you use to inform your answer?")

This presents a link between what the respondents prefer and what they use. Again, this was due to reasons around being simple to understand/ read and ability to see progress:

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Table 3.6: reasons for which informed your answer

"Immediate clarity", "The line graph seemed most immediately to indicate progress". Image B was also fairly popular and was considered the most straightforward to read (as Image 1) in TABLE 3.7. Many respondents mention
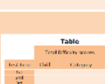
Which of the above presentation types was the most straightforward to read?		Respondents who chose the following option
	Image 1	51%
	Image 2	2%
	Image 3	35%
	Image 4	12%

Table 3.7: which presentation was most straightforward to read

the colours making it clear to read: "The use of colour in the bar graph makes it clear when the difficulties score moves to a different category."

To additionally help with the aim of how accessibility can be improved, the survey asked 2 more frequency style questions, the results of which can be seen in TABLE 3.3 and TABLE 3.4. Respondents showed a preference for discussions with researchers about outcomes, information dashboards and including the voice of the child in outcomes data.

Which of the following forms of data presentation do you think would help you **understand** a child's progress best. Click all that apply:	Respondents who clicked on the following forms of presentation
A discussion with a researcher/ clinician	62.8%
A table of results/ scores	47.1%
A detailed narrative report	47.1%
An information dashboard (a set of info graphics/ graphs/ visual data)	64.7%

Table 3.3: which would help with understanding

Please select one of the following additional features which would most help you be **more interested or engaged** with children's outcomes data:	Respondents who clicked on the following features
Short context boxes with graphs	37.3%
large narratives	13.7%
The child's voice	41.2%
Drawings from children	2%
Info-Graphics	6%

Table 3.4: which additional feature would be more engaging

Analysis/Discussion

Levels of engagement and understanding

Previous literature seemed to argue that practitioners, clinicians and therapeutic staff presented negative attitudes towards outcomes with low levels of understanding (Walter et al, 1998: Callaly & Hallebone, 2001: Hatfield and Ogles, 2004: CORC, 2005: Norman, et al, 2014). The survey here however, presented a generally positive sense of engagement, with feelings that outcomes are useful and insightful, as well as a high level of understanding among the respondents. The sample did seem to have 24% doubting their ability to correctly read outcomes; however this may be due to how often they might be using or looking at the data or their potential perceptions of outcomes data being complex as other practitioners feel (Norman et al, 2014). There seemed to be some uncertainty on 'reliable change', though this may be due to the terminology as this may not often be used in practice.

The general engagement and understanding of outcomes found here may be due to the focused training and integration of outcomes at the organisation. This may have created a cultural shift which is different from the attitudes seen in the other services that were mentioned in the literature which were quite resistant and negative toward outcomes measures. The next step would be to further explore what the organisation does differently to others to increase engagement and understanding among the therapeutic staff, and possibly think about collaboration between the users and those that produce the outcomes data reports to increase accessibility.

Presentation choice and improving accessibility

Choices on presentation preference seemed to focus around the concepts: 'simple', 'easy to read' and 'easy to understand'. However due to the variation in choice but consistency

in this terminology it is difficult to define what they mean when saying 'simple' or 'easy'. It would be interesting to further explore the terminology in consequent research.

Other themes supporting accessibility included 'Able to relate scores to each other and to their respective categories', 'The colours are helpful in understanding data 'and 'Able to see a pattern or progression'. The therapeutic staffs want to be shown something where the trend and score information is clear and accessible through colours, categories and pattern. There seems to be a preference for data presentation elements which support understanding or ability to see trends over aesthetically pleasing features.

There was a higher engagement and preference with the line graph version of outcomes presentation whereby respondents both preferred (50%) and used (72%) this style more than the other options. In conducting the thematic analysis, it was seen that the themes involved in choosing the line graph ranged quite a bit and therefore draws a varying audience in. The line graph was also adapted as an improvement from the CODE outputs and the adaptions included the additions of categories, colour schemes and data labels which were all specifically mentioned in the comments from the respondents "It gives the viewer a clear sense of scale between data points whilst also clearly categorising each data point." "I can quickly and clearly see how often there was cause for concern relative to borderline/normal results" "I can clearly see through the shaded areas which category he falls in; the line graph shows his progress over time very clearly and the data labels provided make it easy to read the individual scores."

Similarly, the bar chart was adapted after examining the Department for Education. Again, the adaptions were specifically picked up on by the respondents who chose them: "Gives immediate visual representation and the colours are clear", "Easy visually accessible ", "colour coding and the graph heights make comparison easy." This feedback was very helpful in seeing how to make presentations more engaging and

understandable. With these fairly simple changes in colours, data labels and including categories the data presentation can be much more accessible.

On the other hand, despite adapting the table presentation to incorporate advice from Moon (2009) and Knaflic (2015) to make it more engaging, the table choice was still unpopular among the therapeutic staff. This may however be due to various other elements such as simply preferring the other choices more rather than a dislike of tables, or even the colour scheme.

Interestingly, despite much of the literature stating that pie charts are difficult to read and are unclear (Moon, 2009), respondents choosing the pie chart predominantly stated that they chose it due to how simple it was to understand or read: "It's a clear picture keeping it simple and self-explanatory".

The infographic was not found to be very popular among the respondents. It may be that the particular infographic created was not engaging or easily understandable to the respondents here (Smiciklas, 2012). However, considering its construction as a story, it did receive mention as keeping the child in mind "…way of seeing the child's journey and to remember that the data is based on a real life individual." When considering the results in TABLE 3.4 for additional features which improve engagement, again the infographic option was not a popular choice however 'the child's voice' was the most popular. Therefore, the therapeutic staff would like a method of keeping the child in mind; the child's voice might provide that function. Other features which seemed agreeable in increasing accessibility included discussions with the researcher/ clinicians and the use of dashboards as supporting understanding. This relates to the advice given by NHS England & NHS Improvement (2016) whereby outcomes need to be fed back in a well communicated way and this would potentially improve accessibility.

Therefore, when presenting outcomes in an accessible way, based on the responses to the above, the sample predominantly want data presented in a simple understandable way but for the graphics and colours to be supportive in this understanding. The frequencies for chosen presentation types do not show a very clear preference; however, we can derive certain tips from the responses such as keeping the image simple and clear, wanting colours to represent scoring or categories, clearly labelling data and keeping the child in mind.

It should be noted that there seemed to be difference in choice based on the data context which is understandable as an audience looking at individual child data as opposed to collective data would want to derive different levels of detail and specific information. For the individual progress outcomes, the audience would search for further detail including, categories, numbers, pattern of progress. Whereas for the collective data, a more general trend of progress though a more pictorial, simple looking presentation might seem sufficient.

Conclusion

It was previously felt that the attitudes towards outcomes would present a lack of engagement and understanding from the therapeutic staff based on both the literature and observations of outcomes service users. The therapeutic staffs in this case study seem to go against this outlook by presenting both a high level of engagement and understanding with outcomes measures and data outputs. The reason behind this is most likely due to the internal work conducted on integrating outcomes into the everyday clinical and therapeutic work with the children. This would result in a cultural shift of understanding and reflecting on their use and insight in evaluating children's wellbeing/ progress and intervention effectiveness.

In trying to find out how to make outcomes more accessible through presentation techniques, the survey was not able to derive a clear single answer, but the line graph and bar chart styles seemed the most popular for preference and understanding; also, certain useful notes could be taken for increasing accessibility. These centred-on data that is clear and readable, and makes use of colour and category coding so that progression and trends can be visualised in a straightforward manner. Additionally, to aid understanding, the therapeutic staff value information dashboards and discussions with researchers/ clinicians on outcomes data to support accessibility.

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