Chapter Nine

Quantitative Methods

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i)Rhiannon Corcoran, Josie Billington and Megan Watkins, 'Using standardised measures to capture 'non-standard' (subjective, personal) reading experiences'.

This section rises to the challenge posed by health commissioners and public health providers when they require evidence of the benefits of reading according to standard and widely-used measures of health and wellbeing. We report on the experimental approaches we have used and the standard measures we have tested to assess the effect of reading on psychological health.

Design

Two studies compared reading with a comparator activity or intervention. The first of these sought to tease out the specific and intrinsic components of a specific model of shared reading and its benefits to mental health and wellbeing by comparison with another cultural activity.[1] Participants were recruited from volunteers of UK charity The Reader who were taking part in a Big Lottery-funded initiative to involve those at risk of mental health issues and social isolation in meaningful endeavour. Volunteers were based at The Reader's headquarters, then newly housed at Calderstones Mansion in Calderstones Park, Liverpool, which, together with the grounds and immediate parkland, was undergoing reconstruction as an International Centre for Reading and Wellbeing. The participants were divided into two groups, A and B. In a cross-over design, Group A experienced six Shared Reading sessions (SR) followed by six Built Environment Design Workshops exploring the development of the surrounding parkland (BE); simultaneously Group B experienced six BE sessions followed by six SR sessions. The same literary texts and design activities were used in both groups, and activities were led by trained experts in literature and environmental/architectural design.

Using standard self-report measures of mental health and wellbeing (detailed separately below), the study found that there was a consistent and statistically significant tendency for involvement in *both* activities to be associated with the self-report of more positive than negative affect. The data suggested, however, that involvement in SR prompted the experience of negative affect to a greater extent than involvement in BE. This was consistent with qualitative findings (see Chapter Eight (b) above) that the intrinsic value of the shared reading of literature lies in its capacity to open individuals up to a broader range of emotional states, via vicarious response to characters in the text or the text's bringing to mind analogous personal situations or past events.

A second study compared the effects of SR for people suffering chronic pain with those offered by a more formal, programmatic therapy, Cognitive Behavioural Therapy (CBT), the standard psycho-social treatment for the condition.[2] A CBT and SR group ran in parallel (at the pain clinic of a UK city hospital), with CBT group-members joining the SR group after the completion of CBT. Participants kept twice-daily (12-hourly) pain diaries as a measure of physical changes. Pain severity was recorded using a 0-10 rating scale, (0 = non-existent, 10 = severe), at 12-hour intervals. Statistical analysis showed the pain rating after the session to be lower than the mean and lower than at two days before and two days after SR. The pain rating two days after was also lower than two days before SR, suggesting the possibility of some prolonged effect, beyond the duration of the group itself. Following CBT, the pain rating was above the mean. There was considerably less evidence here that CBT affected pain and emotion beyond the duration of the group.

The findings correlated strongly with the qualitative and linguistic analysis of the video-recordings of both interventions (see Chapter Eight above). Where in CBT, participants focused exclusively on their pain with 'no thematic deviation', in SR, by contrast, the literature was a trigger to recall and expression of diverse life experiences – of work, childhood, family

members, relationships - related to the entire life-span, not merely the time-period affected by pain. This in itself had a potentially therapeutic effect in helping to recover a whole person, not just an ill one. As one consultant put it, 'When people are in CBT, they are people with pain. When they're in the reading group, they're people with lives' (*Reading and Chronic Pain*, pp. 6, 89). Furthermore, where, in CBT, there was a strong emphasis on a sense of diminishment or subtraction – things 'taken away' by chronic pain – in SR, there was frequently a renewed sense of energy and vitality, sometimes of joy and celebration. This was closer to a rediscovery, via the new stimulus of the literary story, of what participants still *did* have (memories, feelings, thoughts, experiences) rather than a rehearsal or repetition of what they no longer had.

Standard Measures

In both studies, a range of standard measures were employed to explore the health and wellbeing benefits of SR relative to other activities and interventions. This proved a valuable means to test those measures which are most appropriate for capturing the specific aspects of psychological wellbeing encouraged by reading.

For example. The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)[3] was a measure of choice in both studies as it is a widely-used measure in the context of population level public health evaluation. This general measure of wellbeing proved a blunt instrument in relation to SR, however, when compared to the more detailed and nuanced instrument offered by the Ryff Scales of Psychological Wellbeing.[4] Ryff showed that even short involvement in SR produced statistically significant beneficial outcomes in terms of improving an individual's sense of 'purpose in life'. Increased belief in having meaningful life-goals and in the significance of past and present life was shown, furthermore, to be an intrinsic benefit of SR, not replicated in the group activity to which it was compared, where distinct psychological effects were reported. (For example, the same participants who scored highly in the 'Purpose in Life' sub-scale of Ryff when taking part in shared reading, scored highly on a different sub-

scale, ‘Personal Growth’, when engaged in the built environment workshops.) This finding has methodological implications pointing to the Ryff scales as a sensitive tool appropriate for further testing in future studies.

Such further testing has been carried out in relation to another standard measure that has proved important to our studies - the Positive and Negative Affect Scale[5] – which was first used in the Shared Reading (SR)/Built Environment (BE) study to explore participants’ affective state immediately following experience of each activity. This scale consists of words describing emotions (10 positive, 10 negative), and asks participants to write next to each word the extent to which they are feeling each emotion on a scale of 1-5 (1 = not all; 5 = extremely). In addition, participants in the study were asked to write down two words or phrases which best described their experience on each occasion. As noted above, while there was a consistent and statistically significant tendency for involvement in both group activities to be associated with self-report of more positive than negative affect, initial evidence suggested SR produced negative affect to a greater extent than BE, *without this impacting on overall improvement in psychological wellbeing* (as captured by the Ryff scales). A follow-up use of PANAS in the SR/CBT study likewise showed a tendency for slightly lower negative scores – as well as slightly higher positive scores - in relation to SR and a greater range and intensity of expressed feeling, good and bad, in the two words or phrases which participants recorded after each SR session. This is consistent with the qualitative finding (from linguistic-literary analysis of video-recorded sessions and transcribed interviews, see Chapter Eight (b) above) of a far greater diversity of elicited emotion in SR as compared to CBT and an expanded vocabulary for emotional expression. Furthermore, words recorded following CBT tended strongly towards the cognitive (‘interesting’, ‘informative’, ‘educational’) and were narrow in range. SR produced extensive emotional expression *together with,* a more expansive range of cognitive words than was produced by CBT (‘intrigued’, ‘attentive’, ‘concentrated’,

‘thoughtful’, ‘reflective’, ‘alert’, ‘determined’, ‘focussed’, ‘deep’, ‘understanding’, ‘thought-provoking’). This quantifiable evidence gave strong corroboration to the findings emerging from qualitative data analysis that, where CBT encouraged a top-down strategy of mind over matter, SR tended to bring into conscious awareness and verbal explicitness hitherto inarticulate and implicit pain. CBT, that is to say, sought to manage emotions by means of systematic techniques, where SR helped to ‘find’ (often hidden or buried) pain at its personal-emotional source – as an involuntary rather than intended outcome – and thence to turn passive experience of suffering emotion into articulate contemplation of painful concerns.

Such findings are not only potentially significant for future researchers, but for reading providers and practitioners, and point to areas of further two-way collaboration. The trialing of specific measures in these studies, for example, has strongly influenced The Reader’s development of tools for routine evaluation of its shared reading model. In consultation with the research team, The Reader has created self-report questionnaires which are nuanced in respect of the reading experience and more specific to particular populations of beneficiaries (dementia sufferers, people with mental health issues, prisoner in the criminal justice system, open community groups, looked-after children). Common to all such questionnaires is the invitation to give ‘three words that describe how you feel in the Shared Reading group’. Based on quantitative analysis of the data The Reader are collecting, the research team is currently working on developing a ‘reading’ measure, a variation on PANAS, which is more sensitive to the individual impact of reading upon emotional experience, expression and articulacy.

Further Research

Recently, the efficacy of weekly Shared Reading for patients at Ashworth Hospital, Merseyside, UK has been investigated using a 12-month case series design. A case series is a descriptive study that follows a group of patients with a similar diagnosis over a certain period of time. A case series does not test hypotheses but can generate them for future studies.[6]

Ashworth Hospital is a National Health Service hospital in North West England for patients requiring care and treatment in high secure conditions (see Chapters Seven and Eleven). Participants represented a complex forensic sample with experience of psychosis and a history of self-harm behaviour. Sessions were analysed through Discourse Analysis, and Framework Analysis (see above, Chapter Eight) was used to explore participants' interviews about their experience of Shared Reading post-intervention. In addition, questionnaire packs were completed by participants before the intervention, at an interim period of six months and following the intervention. The questionnaire packs comprised tools such as clinical outcome measures, indicators of wellbeing, perspective taking and impulsivity. Tool selection was orientated around initial hypotheses and considered psychometric properties as well as pragmatic suitability.

Perspective Taking was one such outcome of interest given its reported positive effects on communication[7] and negative associations with alexithymia.[8] Perspective Taking was quantitatively recorded using the seven item subscale of the Interpersonal Reactivity Index.[9] The subscale was used in its own right as the full measure is not indicative of total empathy and acceptable psychometric properties of the instrument have been reported.[10]

Impulsivity was also examined due to its link with psychotic disorders.[11] In addition, affective impulsivity has been considered a risk factor for self-harm.[12] The 20-item short UPPS-P Impulsive Behavior Scale was employed which accounts for five aspects of impulsive personality: Negative Urgency, Lack of Premeditation, Lack of Perseverance, Sensation Seeking and Positive Urgency.[13] Evidence suggests that the instrument is generally comparable to the full measure in terms of internal consistency and inter-scale correlations. The incremental validity of impulsivity traits in predicting non-suicidal self-injury and suicidal behaviour, beyond Borderline Personality Disorder symptoms, has also been demonstrated.[14]

Furthermore, the 18-item Ryff Scale of Psychological Well-being[15] was used to assess psychological wellbeing more generally. This instrument includes six dimensions: Autonomy, Positive Relations with Others, Environmental Mastery, Personal Growth, Purpose in Life and Self-acceptance. The factorial validity of the three item per scale version has been reported as only just meeting acceptability criteria but the internal consistency is not as adequate.[16] Fuller versions of the scale evidence more favourable psychometric properties, however, brevity and ease of completion were key factors influencing questionnaire development for this study population.

The quantitative outcome measures described can be used to supplement qualitative data. Examples of this are depicted in case studies of four regular participants, who each attended over sixty per cent of sessions. Participant One's discourse demonstrated a broadening of capacity to consider different interpretations across sessions. This was evident through an increased tendency to use hedging language altering degree of certainty and was reflected quantitatively though a 27% increase in Perspective Taking scores at six months into the intervention from participant baseline. This appeared largely attributable to stronger endorsement with the item about believing questions have two sides and trying to consider both. The response score for this item was maintained at 12 months.

Participant Two's discourse displayed an increase in self-confidence across sessions, the participant required fewer prompts from the facilitator to speak and displayed a movement from second person plural pronouns to more first person singular pronouns. Increased level of ownership over discourse may indicate less discomfort confronting stimuli such as negative emotions. Although total short UPPS-P score showed little change, it is noteworthy that the Negative Urgency subscale items for this participant mostly decreased from baseline to 6 months which was maintained at 12 months. For example, response to the item which describes

saying later regrettable things when feeling rejected changed from ‘somewhat agree’ to ‘strongly disagree’.

Participant Three’s initial discourse was characterised by mimicry and alignment with the discourse of others. Mimicry often served to avoid expansion and disagreement and became a less distinguishing feature of discourse in later sessions. In accordance, total Ryff-18 score increased from 75 to 87 in the first six months. Specifically there was greater endorsement with the autonomy items relating to having confidence in opinions that may differ from the general consensus and not judging the self by the values of others; changes were maintained at 12 months.

In addition, the discourse of Participant Four showed an increase in functionally related adjacency pairs (units of conversation containing one turn each by two speakers, such that the first turn requires a certain type of second turn) and engagement. When interviewed about experience of the intervention, the participant stated they were ‘proud… that I pushed myself to do it rather that not’. This sense of satisfaction from completion was mirrored in greater endorsement with the Ryff Scale item describing good management of daily responsibilities which progressed from strongly disagreeing before the intervention to somewhat agreeing post-intervention.

Using quantitative outcome measures alone for a study such as this may lead to an overly reductive approach which overlooks the subtleties of individual change. Questionnaire responses, when administered by or in the presence of a researcher or clinician in a psychiatric setting, may be particularly susceptible to the effects of social desirability, demand characteristics, difficulty with introspection and concentration. Triangulation, however, facilitates a more holistic and rigorous examination of the multi-dimensional outcomes of reading and can strengthen qualitative findings.

Notes

1.P. Davis, J. Billington, R. Corcoran, V. Gonzalez-Diaz, S. Lampropoulou, G. Farrington, F. Magee, and E. Walsh, 'Cultural Value: Assessing the Intrinsic Value of The Reader Organization's Shared Reading Scheme', (University of Liverpool: Centre for Research into Reading, Literature and Society [CRILS], 2015); E. Longden, P. Davis, J. Billington, S. Lampropoulou, G. Farrington, F. Magee, E. Walsh, and R. Corcoran, 'Shared Reading: Assessing the Intrinsic Value of a Literature-Based Health Intervention', *Journal of Medical Humanities*, 41: 2 (2015), 113-120.

2.J. Billington, G. Farrington, S. Lampropoulou, K. McDonnell, J. Lingwood, A. Jones, James Ledson, A.-L. Humphreys, and N. Duirs, 'A Comparative Study of Cognitive Behavioural Therapy and Shared Reading for Chronic Pain' (University of Liverpool: CRILS, 2016); J. Billington, G. Farrington, S. Lampropoulou, J. Lingwood, A. Jones, J. Ledson, K. McDonnell, N. Duirs, and A.-L. Humphreys, 'A Comparative Study of Cognitive Behavioural Therapy and Shared Reading for Chronic Pain', *Journal of Medical Humanities,* 43:3 (2016), 155-65.

3.R. Tennant, L. Hiller, R. Fishwick, S. Platt, S. Joseph, S. Weich, J. Parkinson, J. Secker, and S. Stewart-Brown, 'The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Development and UK Validation', *Health and Quality of Life Outcomes*, 5:63 (2007), 1-13.

4.C. D. Ryff, 'Happiness is Everything, or is it? Explorations on the Meaning of Psychological Well-Being', *Journal of Personality and Social Psychology*, 57:6 (1989), 1069-1081.

5.D. Watson, L. A. Clark, A. Tellegen, 'Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scale', *Journal of Personality and Social Psychology*, 54:6 (1988), 1063-1070.

6.J. Sim and C. Wright, *Research in Health Care: Concepts, Designs and Methods* (Andover: Cengage Learning 2000).

7.R. M. Krauss and S. R. Fussell, S. ‘Perspective-Taking in Communication: Representations of Others’ Knowledge in Reference’, *Social Cognition: A Journal of Social, Personality, and Developmental Psychology*, 9:1 (1991), 2–24.

8.H. Guttman and L. Laporte, ‘Alexithymia, Empathy, and Psychological Symptoms in a Family Context’, *Comprehensive Psychiatry*, 43:6, (2002), 448–455.

9.M. H. Davis, ‘A Multidimensional Approach to Individual Differences in Empathy, *JSAS Catalog of Selected Documents in Psychology*, 10 (1980), 85.

10.M. H. Davis, ‘Measuring Individual Differences in Empathy: Evidence for a Multidimensional Approach’, *Journal of Personality and Social Psychology*, 44:1 (1983), 113-126; A. M. Fernández, M. Dufey, and U. Kramp, ‘Testing the Psychometric Properties of the Interpersonal Reactivity Index (IRI) in Chile: Empathy in a Different Cultural Context’, *European Journal of Psychological Assessment*, 27:3 (2011), 179-185.

11.P. Nanda, N. Tandon, I. T. Mathew, J. L. Padmanabhan, B. A. Clementz, G. D. Pearlson, J. A. Sweeney, C. A. Tamminga, and M. S. Keshavan, (2016). ‘Impulsivity Across the Psychosis Spectrum: Correlates of Cortical Volume, Suicidal History, and Social and Global Function’, *Schizophrenia Research*, 170:1 (2016), 80-86.

12.J. Rawlings, M. Shevlin, R. Corcoran, R. Morriss, and P. J. Taylor, ‘Out of the Blue: Untangling the Association between Impulsivity and Planning in Self-Harm’, *Journal of Affective Disorders,* 18:4, (2015), 29-35.

13.M. A. Cyders, A. K. Littlefield, S. Coffey, and K. A. Karyadi, ‘Examination of a Short English Version of the UPPS-P Impulsive Behavior Scale’, *Addictive Behaviors*, 39:9 (2014), 1372-1376.

14.D. R. Lynam, J. D. Miller, D. J. Miller, M. A. Bornovalova, and C. W. Lejuez, ‘Testing the Relations between Impulsivity-Related Traits, Suicidality, and Nonsuicidal Self-Injury: a Test

of the Incremental Validity of the UPPS Model', *Personality Disorders: Theory, Research and Treatment*, 2:2, (2011), 151-160.

15.C. D. Ryff and C. M. Keyes, 'The Structure of Psychological Well-Being Revisited', *Journal of Personality and Social Psychology*, 69:4 (1995), 719-727.

16.D. van Dierendonck, 'The Construct Validity of Ryff's Scales of Psychological Well-Being and its Extension with Spiritual Well-Being', *Personality and Individual Differences*, 36:3 (2004), 629-643.