A clinical psychology service in stroke rehabilitation: A review of five years of referrals and an evaluation of a matched care model

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This article presents a review of five years of referrals to a clinical psychology service in stroke rehabilitation and evaluates the efficacy of a matched care approach for triaging referrals. Analysis showed that where referrals were triaged to one of three levels, those allocated to the highest level of priority were seen sooner and for more sessions. Where pre and post assessment across psychological intervention was undertaken, average improvement in mood showed medium to large effect sizes. The utility of a matched care model as well as service improvements based on this review are discussed.

Introduction: Matched care in Stroke

PSYCHOLOGICAL difficulties after stroke are common. Indeed, Kneebone and Lincoln (2012) reported that post stroke depression occurs in 30 per cent of patients, anxiety in 22–28 per cent, post-traumatic stress in 10–30 per cent and anger difficulties in 17–35 per cent. Accordingly, the Royal College of Physicians (RCP; 2016) National Clinical Guidelines for Stroke recommend that all patients have their mood assessed within six weeks of their stroke and that services use a matched care approach. Matched care involves an initial triage so that patients are provided psychological support at an appropriate level, based on their presenting difficulties. Likewise, the NHS Improvement (2011) guidelines for psychological care after stroke recommend a tiered approach in which patients are triaged to receive either level one support (provided by peers and non-psychology specialist stroke staff), level two support (provided by non-psychology stroke specialist staff supervised by clinical psychologists/neuropsychologists) or level three support (provided by stroke specialist clinical psychologists/neuropsychologists or psychiatrists). Examples of mood screening pathways developed in response to these recommendations are available (e.g. Gurr, 2011; Kneebone et al., 2010; Kneebone, 2016; McLean et al., 2019).

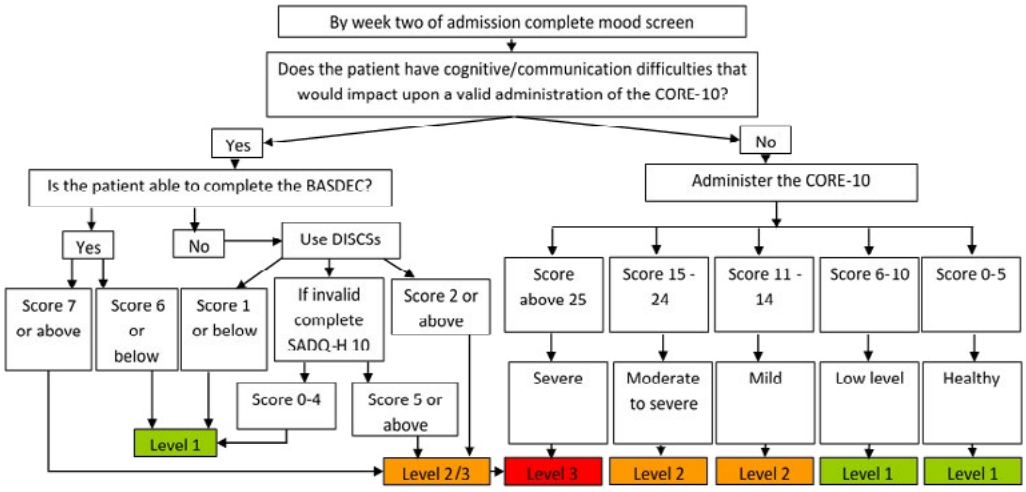
Service context

To meet RCP recommendations, a mood screening pathway was developed in central Norfolk to facilitate triaging of psychology referrals (see Figure 1). The central Norfolk stroke service employs one clinical psychologist (0.8 wte), one assistant psychologist (1.0 wte) and offers third-year placements to trainee clinical psychologists. The service is based within an early supported discharge team at a community hospital and accepts referrals from a range of services (see Table 1). Appointments are offered at a range of settings, including the community hospital, acute and rehabilitation wards and in patient's homes.

Review aims

In this review we examined all referrals to the service between 1 January 2015 and 31 December 2019. Specific questions we addressed were: what is the nature of refer-

Figure 1: Mood Screening Pathway Developed in Central Norfolk Stroke Services



Note. CORE-10 = Clinical Outcomes Routine Evaluation – Ten Item Version; BASDEC = Brief Assessment Schedule for Depression Cards; DISCS = Depression Intensity Scale Circles; SADQ-H 10; Stroke Aphasic Depression Questionnaire Hospital Version.

Table 1: Referrals to Clinical Psychology

Referral Source	No. of patients referred	% of referred patients seen	Average No. of sessions received/SD	Average No. weeks waiting/SD
Early Supported Discharge Team	214 (36%)	76%	4/5.6	6/4.9
Rehabilitation Ward	142 (24%)	96%	3/4.2	1/1.4
Six Month Follow up	120 (20%)	76%	3/3.6	8/5.6
Acute Hospital	82 (14%)	78%	3/5.1	3/3.2
Consultant follow up/TIA Clinic	23 (4%)	48%	2/2.8	10/5.4
Self-Referral	7 (1%)	86%	5/4.9	5/4.5
Community Services	5 (1%)	80%	4/5.2	7/4.4
Research Team	3 (0.5%)	67%	2/3.2	5/3.3
General Practitioner	2(0.5%)	50%	2/2.8	13
All referrals	598	80%	3/4.7	5/4.8

rals in terms of demographics, waiting times, patient uptake, average number of sessions, reason for referral, repeat referrals and the frequency of pre-referral mood assessment? Does the level of a referral affect waiting time, number of sessions and allocation? Does the type of mood assessment used affect waiting time? Is there an improvement in patient's mood at discharge?

Results

Nature of referrals

Within the five-year period there were 598 referrals. Patients were aged between 18 and

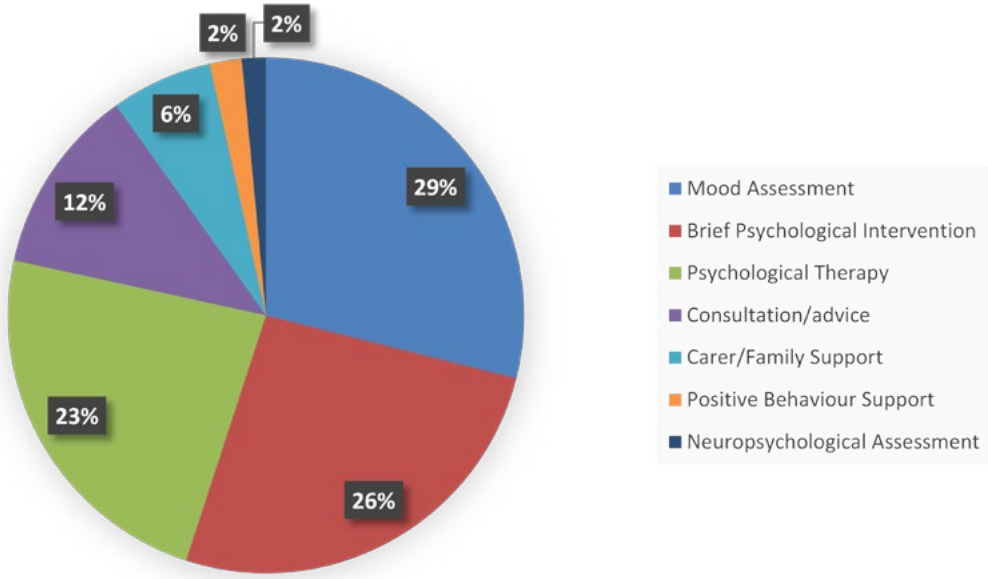
100 years (mean = 66, *SD* = 15.3 years) and 57 per cent were male. Eighty per cent of referrals (i.e. 487 people) received an initial psychology appointment, and the average wait for an initial appointment was 5 weeks (*SD* = 4.8, *Mdn* = 3, range = 0 – 18). Where initial appointments did not take place, this was due to the patient either declining the service, being considered more appropriate for other services, living outside the catchment area, improving to the extent that input was no longer required, not responding to contact, or dying. The average number of sessions received was 3 (*SD* = 4.7, *Mdn* = 2, range = 0 – 41).

Figure 2 displays the reasons for referral. Most referrals were for mood and adjustment related difficulties. Indeed, only 2 per cent of the total number of cases requested neuropsychological assessment. Nonetheless, various patients went on to receive a neuropsychological assessment after an initial assessment where it was felt that this would inform formulation, intervention and care. Referrals for neuropsychological assessment were triaged in the same manner as other referrals using the mood screening pathway shown in Figure 1.

Of the 598 referrals, 46 people were referred twice and two were referred three times, resulting in 98 separate repeat referrals (16 per cent of total). Perhaps unsurprisingly, the first referral was more often from a service earlier on in the pathway (i.e. early supported discharge team = 38 per cent, rehabilitation ward = 29 per cent, acute hospital = 16 per cent, other = 17 per cent) whereas their second referral was typically from a service further on (i.e. stroke nurse six month follow up = 46 per cent, early supported discharge team = 21 per cent, other = 33 per cent).

We request that all referrals to psychology are accompanied by a mood assessment. However, of the 598 referrals, only 362 (60.5 per cent) included the results of a prior mood assessment. A mood assessment was completed during the initial psychology assessment for 137 patients (23 per cent), and for 99 patients (16.5 per cent), no mood screen was completed at all either due to staff omission or patient refusal. Nonetheless, 499 patients (83.5 per cent) had their mood assessed either prior to referral or at initial assessment.

Figure 2: Reasons for Referral



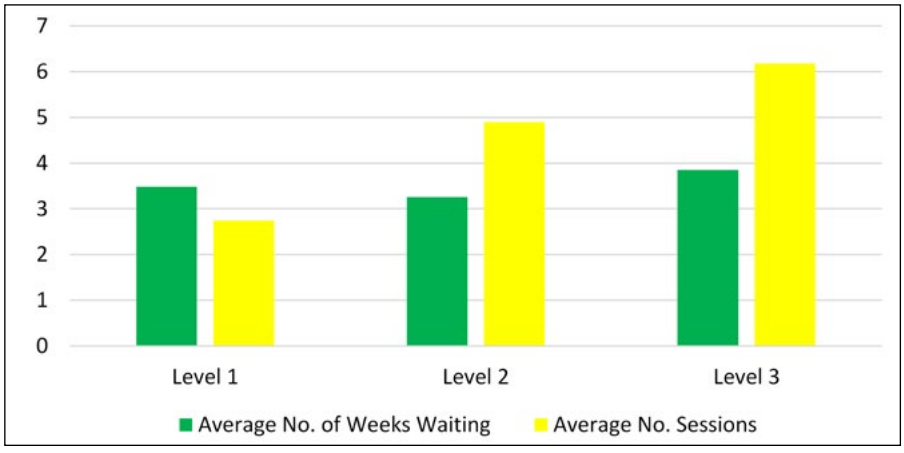
Does referral level affect waiting time, number of sessions and allocation?

Of the 279 patients referred with a prior mood assessment and given an initial assessment appointment, 47 were classed as level one (17 per cent), 170 at level two (61 per cent) and 62 at level three (22 per cent). The average wait time and number of sessions received by this group is shown in Figure 3. Here, an incremental trend was observed, where the average number of sessions received increased with each consecutive level. Furthermore, on average, those whose mood assessment score fell at level three were seen more quickly than those at levels one or two.

Of the 137 referrals receiving a mood assessment at their initial psychology appointment, 39 were at level one (28.5 per cent), 76 were at level two (55.5 per cent) and 22 at level three (16 per cent). Figure 4 shows that the trend in the average number of sessions increasing with severity level was seen in this group, as per the group with a pre-existing mood assessment. However, as would be expected, there was no difference between the average wait time across all three levels. For referrals categorised as level one and two at their initial psychology appointment, the average wait was approximately half that for patients with a pre-existing mood assessment.

Figure 3: Average waiting time (in weeks) and average number of sessions provided for patients who received a mood assessment prior to referral

Figure 4: Average waiting time (in weeks) and average number of sessions provided for patients who received a mood assessment in their initial appointment



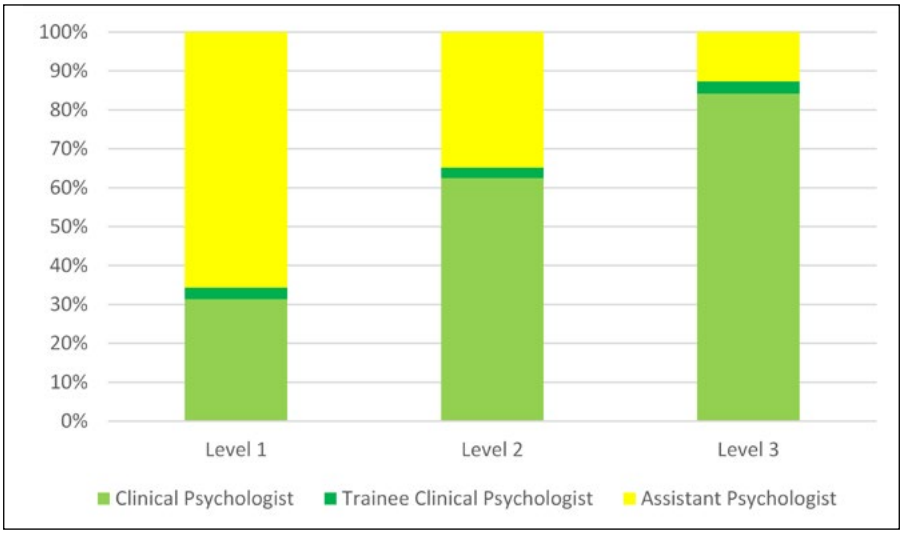
To further explore the relationship between mood scores and waiting times/number of sessions, correlational analysis using Microsoft Excel was conducted to examine the relationship between these variables and scores on the Clinical Outcomes Routine Evaluation – Ten Item Version (CORE-10, the most commonly used measure). A total of 135 CORE-10 questionnaires were available for analysis where a mood screen had been carried out prior to referral, the patient was seen for an initial appointment and the patient was assessed on the CORE-10 alone to allocate level. There was only a very weak positive correlation between CORE-10 total score and total number of sessions (r (133) = .20, p = .008, r^2 = .04) and a very weak negative correlation between CORE-10 total score and days waiting (r (133) = -.20, p = .009, r^2 = .04).

To look at how the referral was allocated, we examined the percentage of referrals seen by the service's clinical psychologist, trainee clinical psychologist or assistant psychologist at each level. As can be seen in Figure 5, the majority (84%) of level 3 referrals where seen by the clinical psychologist, whereas those that were referred with milder mood difficulties were more frequently seen by an assistant psychologist (66%).

Does the mood assessment used influence waiting time?

The mood screening pathway (and hence the data in Figures 3 and 4) uses a range of assessments. One of these (the CORE-10) includes severity ranges allowing triage to the three matched care levels. However, the Brief Assessment Schedule Depression Cards (BASDEC), the Depression Intensity Scale Circles (DISCS) and the Stroke Aphasic Depression Questionnaire Hospital Version (SADQ-H 10) use a single cut off score to indicate caseness, so referrals could only be allocated in a binary fashion (i.e. to levels one and two). Whilst efforts were made to prioritise referrals where scores on the BASDEC, DISCS or SADQ-H 10 were considerably above the cut off for caseness, the lack of standardised level three allocations on these measures may mean people assessed using these scales waited longer to be seen. To explore this, an analysis of the frequency with which each mood assessment was used to allocate severity level, and hence waiting time in Figure 3, was carried out. Of the 279 referrals, the vast majority were allocated levels using either the CORE-10 (N = 149) or the Patient Health Questionnaire (PHQ-9) and the Generalised Anxiety Disorder Assessment (GAD-7; N = 101 and 95

Figure 5: Percentage of referrals seen by the clinical psychologist, assistant psychologist and trainee clinical psychologist.



respectively, which were both simultaneously used in the mood screening pathway prior to the adoption of sole use of the CORE-10 in late 2016). The BASDEC (N= 34), DISCS (N= 15), and SADQ-H 10 (N= 3) were used much less often[1]. However, contrary to expectations, average waiting time was actually shorter for those assessed with the BASDEC, DISCS and SADQ-H (i.e. CORE-10 = 6.3 weeks, PHQ-9/GAD-7 = 5.5 weeks, BASDEC = 5.2 weeks, DISCS = 4.4 weeks, SADQ H-10 = 1 week). These findings suggest that the lack of level three severity ratings for the BASDEC, DISCS or SADQ-H may not have unduly disadvantaged those assessed on them. Nonetheless, the scope for level three allocations on these scales would be a desirable development.

Is there an improvement in patient's mood at discharge?

Where possible, a mood assessment was administered pre and post intervention. Here, Table 2 shows that all assessments displayed medium or large effect sizes in the direction of improvement[2].

Discussion

This article described a clinical psychology service in stroke rehabilitation and reviewed a matched care approach for triaging referrals. We found that where referrals were accompanied by a mood assessment, those with the highest level of emotional distress were seen sooner. Of course, no such triaging was possible for patients without a prior mood assessment. However, where no prior mood assessment was undertaken, waiting times across levels one and two were actually much shorter. This may result from (a) uncertainty over the referral priority meaning the psychology service was more anxious to assess, and (b) some referrals viewed as more urgent were requests for mood assessment themselves. Nonetheless, these findings support the use of a mood screening pathway by ensuring those who are in most urgent need are prioritised.

Our analysis showed that despite requests for all referrals to be accompanied by a prior mood assessment, only 60.5 per cent of referrals were. Equally, despite national service guidelines recommending that only level three referrals are seen by psychology, only 21 per cent of referrals that came with a prior mood assessment were graded at level three. This could be for a number of reasons including (a) 29 per cent of referrals were actually requests for a mood assessment, (b) lack of referring staff confidence, training and/or time/resources to complete a mood assessment and/or (c) the psychology service having historically adopted an approach where referrals without a prior mood assessment or at levels one and two were not routinely rejected. This latter approach aimed to

Table 2: Mean pre and post-intervention mood assessment scores

Mood Assessment	Pre	Post	Cohen's *d*
CORE-10	17 (N = 136, SD = 6.7)	9 (N = 136, SD = 6.4)	1.22
BASDEC	10 (N = 18, SD = 4.9)	5 (N = 18, SD = 3.2)	1.20
DISCS	3 (N = 21, SD = 1.4)	2 (N = 21, SD = 1.4)	0.71
PHQ-9	15 (N = 56, SD = 5.9)	7 (N = 56, SD = 5.1)	1.45
GAD-7	12 (N = 54, SD = 5.6)	6 (N = 54, SD = 4.2)	1.21

[1] It was not possible to calculate percentages for these figures as on a small number of occasions two separate mood assessments were administered to the same person. Here, the level would be determined by whichever score was the highest.

[2] The effect size for the SADQ-H 10 could not be calculated as there was only one pre-post case.

avoid obstructiveness and respect that mood screening is not an exact science. Indeed, a referrer's subjective assessment of urgency can be a valid source of information. However, it appears that more vigilance when accepting referrals may be helpful given 28.5 per cent of referrals without a prior mood screen were later classed as level one whereas only 19 per cent of referrals with a mood screen were at level one. This finding supports the benefits of pre-referral mood assessment to avoid unnecessary appointments and staff training in pre-referral mood assessment. Indeed, the Royal College of Physicians (2016) recommend that clinical staff in services for people with stroke receive training in the awareness of psychological problems following stroke and the skills to manage them. Whilst the service has offered such training in the past, a more feasible, ongoing approach to mood screening training (possibly incorporating e-learning) may improve pre referral screening rates and psychological care moving forward. Indeed, Kneebone, Neffgen and Pettyfer (2012) and Morris, Jones, Wilcox, and Cole (2012) discuss evaluations of other such trainings that could inform local developments.

Additionally, despite falling in the expected directions, correlation analysis using the CORE-10, did not show any meaningful relationship between distress and (a) number of sessions and (b) days waiting for an initial appointment. This may be because, as can be seen in Figure 3, only level three referrals appeared to be prioritised whereas level two and one referrals had roughly equal waiting times and the much higher volume of level two (compared to levels one and three) referrals may have meant that these categorical averages got lost in the linear correlations. Notwithstanding this, such correlations may serve as a useful metric to review the service moving forward whilst recognising that a range of factors other than initial mood assessment score might account for variance in the correlations such as the subjective urgency of a referral, risk issues and geographical proximity (i.e. an appointment on the onsite rehabilitation ward is likely to result in a reduced waiting time compared to a community visit).

This review has also highlighted the need to address the lack of level three categories for the BASDEC, DISCS and SADQ-H 10. Whilst efforts were made to prioritise referrals on these scales where scores were considerably above the cut off for caseness, not having a clear level three category on these scales has potential to further disadvantage this group of people who are already vulnerable because of their communication difficulties. Therefore, finding valid ways of ascribing level three allocations on these measures would be a useful development. Whilst the mood screening pathway adopted in central Norfolk has been developed based on guidance from the NHS Improvement (2011) recommendations, Kneebone (2016) offers a modification of these with a clearer specification of services at the different levels which offers useful guidance for the service moving forward.

Finally, where pre and post intervention assessment of mood scores were completed, on average, patient's mood improved with medium and large effect sizes. Caution is needed in interpreting this finding due to the lack of a control group and the missing data for some patients at post-intervention time point not likely being missing at random. Nonetheless, this finding adds clinical practice support to the growing number of randomised controlled trails supporting the benefits of psychological therapies after stroke including motivational interviewing (Watkins et al., 2007), behavioural activation (Thomas et al., 2013), cognitive behaviour therapy (Kootker et al., 2017; Nguyen et al. 2019), problem solving therapy (Hill et al., 2019) and acceptance and commitment therapy (Majumdar & Morris, 2018).

A closing consideration is that this audit has not captured data on patient experience. Whilst the central Norfolk stroke service captures Friends and Family Test data, no such measures are captured specifically by psychology. Moreover, whilst matched care models may be functional from a service delivery point of view, it is unclear what

a patient perspective is on this. Harrison, Ryan, Gardiner, and Jones (2017) explored patient and staff experiences of psychological care in stroke services and their results highlighted the limited availability of specialist psychological expertise, but also protective factors that appeared to reduce the need for formal psychological support (i.e. communication, information provision, peer and social support). Further research that captures the range and type of formal and informal psychological interventions that are helpful in different contexts and length of time after stroke would be helpful.

In conclusion, this service review supports national guidance around matched care in stroke psychology services and has highlighted several areas for the service to continue to improve patient care.

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