

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Feasibility and acceptability of a mobile model of environmental enrichment for patients with mixed medical conditions receiving inpatient rehabilitation: a mixed methods study
AUTHORS	Fulton, Sarah; Janssen, Heidi; Salih, Salih; James, Alecia; Elphinston, Rachel

VERSION 1 – REVIEW

REVIEWER	Abayomi Oyeyemi Ajagbe Nile University of Nigeria, ANATOMY
REVIEW RETURNED	23-Feb-2022

GENERAL COMMENTS	Corrections are require for grammars and punctuations
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REVIEWER	Dale Corbett University of Ottawa, Medicine
REVIEW RETURNED	24-Feb-2022

GENERAL COMMENTS	This is an interesting attempt to bring a form of environmental enrichment (EE) into a small hospital setting that lacks a dedicated rehabilitation unit. It is also the case that patients with a variety of medical conditions could potentially benefit from the extra stimulation provided by EE. Since EE is an intervention derived from preclinical, animal work it is important to cite the original studies not the authors' clinical papers (e.g. ref # 9). Other clinicians interested in potentially applying EE to the clinical setting should be cognizant of the specific details of EE as utilized in the animal studies and then adapt as required.
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REVIEWER	Kyle Harrington University of Nottingham, Institute of Mental Health
REVIEW RETURNED	25-Jul-2022

GENERAL COMMENTS	<p>(1) The Patient and Public Involvement statement is sparse. How did volunteer staff contribute? Was there any Patient Involvement in the design or analysis of the study? Did you consult patient groups prior to data collection?</p> <p>(2) In the discussion section, you state a reason for eligible patients declining to take part was capacity could you expand? Was this a lack of capacity to participate in the study, or a lack of capacity in general to use the EE?</p> <p>(3) The labels of figures 2 (a,b,c,d,e) are concatenated. These figures needs to be redrawn with full labels.</p>
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	<p>(4) In the initial feasibility criteria, over 50% recruitment is specified (>50%), however, exactly 50% of eligible participants were recruited. Does this therefore fall short of your initial criteria? If you intended it to be ≥50% recruitment, then this needs adjusting, because otherwise the statement, "The results met or exceeded our set parameters suggesting that EE was feasible in this inpatient rehabilitation setting", seems false.</p> <p>(5) It would also be advisable to refer explicitly to the three criteria again in either the results where it is mentioned, or the discussion, either by repeating them, or by assigning a number or letter. "We considered the EE intervention feasible if we could (1) recruit > 50% of eligible patients over a 3-month period and retain 80%; (2) complete 80% of baseline patient assessments; (3) achieve < 1 adverse events or complaints, with no serious adverse events reported; (4)conduct patient activity observations on at least 80% of scheduled occasions"</p> <p>(6) Little mention is made of the patient activity data within the discussion section, and this should be expanded upon. In general, patient activity data needs to be more integrated in to the main body of the manuscript. It is mentioned within the abstract, but figures only appear in the appendices; with no reference within the main body of the text.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. Abayomi Oyeyemi Ajagbē, Nile University of Nigeria

Comments to the Author:

Corrections are require for grammars and punctuations.

We have edited the manuscript as required.

Reviewer: 2

Dr. Dale Corbett, University of Ottawa

Comments to the Author:

This is an interesting attempt to bring a form of environmental enrichment (EE) into a small hospital setting that lacks a dedicated rehabilitation unit. It is also the case that patients with a variety of medical conditions could potentially benefit from the extra stimulation provided by EE. Since EE is an intervention derived from preclinical, animal work it is important to cite the original studies not the authors' clinical papers (e.g. ref # 9). Other clinicians interested in potentially applying EE to the clinical setting should be cognizant of the specific details of EE as utilized in the animal studies and then adapt as required.

Thank you for this suggestion. We have included additional references to pre-clinical animal studies where this work has originated (pg. 4):

“Environmental enrichment (EE), a paradigm developed in animal models 1,2...”

1. van Praag H, Kempermann G, Gage FH. Neural consequences of environmental enrichment. *Nat Rev Neurosci.* 2000;1(3):191-8.

2. Nithianantharajah J, Hannan AJ. Enriched environments, experience-dependent plasticity and disorders of the nervous system. *Nat Rev Neurosci*. 2006;7(9):697-709.

Reviewer: 3

Dr. Kyle Harrington, University of Nottingham

Comments to the Author:

(1) The Patient and Public Involvement statement is sparse. How did volunteer staff contribute? Was there any Patient Involvement in the design or analysis of the study? Did you consult patient groups prior to data collection?

We have clarified the role of volunteers, staff, and patients in the study (pg. 11-12):

“Hospital volunteers who volunteered to participate in this study contributed to the development of guidelines for operation and storage of the mobile EE trolley including how it would be implemented during their shift. Volunteers participated in training in the research protocol for use of the EE trolley and the ethical considerations. Allied health and nursing staff were engaged in research team meetings to develop the research protocol and operating guidelines for the EE trolley. There was no direct involvement of patients in the design of the study or analysis of the results.”

(2) In the discussion section, you state a reason for eligible patients declining to take part was capacity could you expand? Was this a lack of capacity to participate in the study, or a lack of capacity in general to use the EE?

We edited Figure 1 to clarify that patients were excluded if they had more medical, cognitive, or behavioral limitations (n=4).

We also clarified minor points in the Participants section on pg. 7:

“Screening of rehabilitation program referrals for potential study eligibility occurred in weekly multidisciplinary case conferences, facilitated by a senior allied health practitioner (SF). Patients were then screened using the following inclusion criteria: (1) medically stable, (2) estimated length of stay for 15 days or more, (3) able to understand spoken and written English, (4) able to follow a one stage command (5) able to sit unsupported out of bed or in bed, and (6) pre-stroke modified Rankin Scale score of < 2 (administered to stroke patients only) indicating no or little disability/dependency. Patients with behavioural, more severe medical, cognitive or other limiting factors (e.g., infection control) preventing their safe participation in standard rehabilitation were excluded.”

We have also updated the Discussion accordingly (pg. 18-19).

“The medical stability of patients was an important concern identified pre-implementation. Most of the patients who were excluded had more severe medical, behavioral, or cognitive problems that prevented their safe participation in the study. Staff training provided education about medical oversight and the need for ongoing monitoring to detect any patient deterioration during the intervention phase. Further consideration of specific patient supports and modifications to the intervention for patients with more severe medical, cognitive, or behavioural problems is needed.”

(3) The labels of figures 2 (a,b,c,d,e) are concatenated. These figures need to be redrawn with full labels.

We have updated the presentation of the Figures in the supplementary materials to reflect one Figure.

(4) In the initial feasibility criteria, over 50% recruitment is specified (>50%), however, exactly 50% of eligible participants were recruited. Does this therefore fall short of your initial criteria? If you intended it to be $\geq 50\%$ recruitment, then this needs adjusting, because otherwise the statement, "The results met or exceeded our set parameters suggesting that EE was feasible in this inpatient rehabilitation setting", seems false.

This was an editorial oversight and we have added > 50%.

(5) It would also be advisable to refer explicitly to the three criteria again in either the results where it is mentioned, or the discussion, either by repeating them, or by assigning a number or letter.

"We considered the EE intervention feasible if we could (1) recruit > 50% of eligible patients over a 3-month period and retain 80%; (2) complete 80% of baseline patient assessments; (3) achieve < 1 adverse events or complaints, with no serious adverse events reported; (4) conduct patient activity observations on at least 80% of scheduled occasions"

We have referred to the specific feasibility criteria in the Results section (pg. 16):

"Twelve patients met initial eligibility criteria and six patients were recruited to the study (Feasibility Criteria 1 met; recruit >50%). Five patients (80% male) with a mean age of 74 years (IQR 72-79) participated in the EE intervention; one patient (Patient A) was discharged earlier than expected and did not complete all aspects of the intervention (Feasibility Criteria 1 met; retain 80%). Time to consent from admission to the rehabilitation program was 2 days or less. See Figure 1 for patient flow. Patient characteristics are outlined in Table 3. All eligible patients completed the baseline assessments and post-assessments (Feasibility Criteria 2 met; 80% of baseline assessments completed). There were no adverse events or complaints reported (Feasibility Criteria 3 met; < 1 adverse events/complaints). Patient activity observations were conducted as scheduled on all occasions, except for one occasion when a patient was out of the hospital on planned day leave (Feasibility Criteria 4 met; activity observations conducted > 80% of scheduled occasions)"

(6) Little mention is made of the patient activity data within the discussion section, and this should be expanded upon. In general, patient activity data needs to be more integrated into the main body of the manuscript. It is mentioned within the abstract, but figures only appear in the appendices; with no reference within the main body of the text.

We included a summary of the observational patient data in the Results (pg. 16-17):

"Overall, increases in any activity and specific activity (cognitive; social) types were observed for four of the five participants (B, C, E and F) in the intervention compared to the control phases."

We also included a brief interpretation in the Discussion section (pg. 19-20):

"In addition, observational data provided preliminary evidence for increased overall, social, and cognitive activity levels in four out of five of patients in the intervention vs control phases."

VERSION 2 – REVIEW

REVIEWER	Kyle Harrington University of Nottingham, Institute of Mental Health
REVIEW RETURNED	16-Aug-2022
GENERAL COMMENTS	<p>I would like to thank authors for addressing comments in a previous review in a comprehensive manner. I would also like to thank authors for including the "tracked changes" version of their manuscript.</p> <p>All previous comments have been addressed to my satisfaction. This paper is well-written and well-structured. I have no hesitation in recommending this manuscript for publication in its current form.</p>