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STARS Critically Appraised Topic (CAT) Group: Nursing workload and Functional Independence Measure (FIM)

Specific Question:

In an inpatient adult rehabilitation ward is the Functional Independence Measure (FIM) the most effective tool to inform nursing workload allocation?

Clinical bottom line

There is insufficient evidence to justify using the FIM to inform nursing workload planning in inpatient rehabilitation. The FIM is not a tool that was designed or validated to determine workload allocation.

There is some evidence (from spinal cord injury rehabilitation) that the Northwick Park Dependency Scale is better at informing nursing workload allocation than the FIM.
There is also some evidence that the FIM collected on the day of admission to inpatient rehabilitation more accurately captures the burden of care than FIM scores collected after that day.

Why is this important?

Staffing levels in rehabilitation settings use FIM - total score for determining nursing workload allocation, funding & benchmarking. We do not know whether there is good evidence to support the validity of using the FIM for this purpose.

Inclusion Criteria

Needs to be in an inpatient rehabilitation setting

Search

2010-2021

Type of Study

	Description	Search terms
Population and Setting	Nurses in a hospital inpatient rehabilitation setting	Nurse* Rehabilitation
Intervention or Exposure (ie what is being tested)	functional independence measure (FIM)	functional independence measure* FIM
Comparison, if any	Alternative workload tools or measures	Acuity Tools Northwick Park dependency measure Trendcare
Outcomes of interest	Sensitivity and accuracy of FIM in relationship to workload allocation	Workload FIM sensitivity
Types of studies	Ideally RCTs (where FIM is used to inform nursing workload allocation), or	

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Date CAT completed: 25/05/2022
Date CAT to be reviewed: 25/05/2023

	non-intervention studies if RCTs not available (i.e., observational studies)	

Databases Searched

PubMed, Embase, CINAHL & the Cochrane Library.

Date of search

1/9/21

Search Strategies (including subject headings)

PubMED

(((functional independence measure*[tiab] OR FIM[tiab] OR "Health Status Indicators"[Mesh] OR "Northwick Park" OR Trendcare[tiab] OR "Disability Evaluation"[Mesh]) AND ((nurs*[ti] OR "Nursing Staff"[MAJR] OR "Nursing Staff, Hospital"[Mesh] OR "Models, Nursing"[Mesh]) AND ("rehabilitation"[Subheading] OR "rehabilitation"[tiab] OR "rehabilitation" [MeSH Terms] OR rehab*[tw]) OR "Rehabilitation Nursing"[MESH])) AND ("Workload"[MAJR] OR work*[tiab] OR staff* OR "Health Services Needs and Demand"[MAJR] OR "Workforce"[Mesh] OR "Personnel Staffing and Scheduling"[Mesh] OR "Nursing Staff, Hospital/supply and distribution"[Mesh] OR requirements*[tiab] OR "Patient Acuity"[Mesh])) NOT (nursing home*[tiab])

CINAHL EBSCOHOST

(((TI nurs* OR MH "Nurses") AND ("rehabilitation" OR MH "Rehabilitation" OR rehab* OR MM "Rehabilitation Patients")) OR MH "Rehabilitation Nursing") AND ("functional independence measure*" OR FIM OR "Northwick Park" OR Trendcare OR "Care Needs Assessment" OR IN Functional Independence Measure (FIM) OR IN Barthel Index OR IN modified Functional Ambulation Classification) AND (work* OR staff* OR requirements* OR MH "Workload" OR MH "Workload Measurement" OR MH "Nurse-Patient Ratio" OR MH "Health Services Needs and Demand" OR MH "Personnel Staffing and Scheduling" OR MH "Patient Classification")

Embase.com

 (((("functional independence measure*":ti,ab OR FIM:ti,ab OR 'health status indicator'/exp OR "Northwick Park" OR Trendcare:ti,ab) AND ((nurs*:ti OR 'nursing staff'/exp) AND ("rehabilitation":ti,ab OR 'rehabilitation'/exp OR rehab*) OR 'rehabilitation nursing'/exp)) AND (Workload/exp OR work*:ti,ab OR staff* OR Workforce/exp OR 'personnel management'/exp OR requirements*:ti,ab OR "Patient Acuity"/exp))

Cochrane Library

#1   "functional independence measure*" OR FIM OR "Northwick Park" OR Trendcare   1921
#2   MeSH descriptor: [Health Status Indicators] explode all trees   22858
#3   MeSH descriptor: [Disability Evaluation] explode all trees   3818
#4   #1 OR #2 OR #3 27822
#5   (nurs*):ti   11622
#6   MeSH descriptor: [Nursing Staff] explode all trees   665
#7   MeSH descriptor: [Nursing Staff, Hospital] explode all trees   458
#8   MeSH descriptor: [Models, Nursing] explode all trees   155
#9   #5 OR #6 OR #7 OR #8   11960
#10   ("rehabilitation" OR rehab*):ti,ab,kw   54581
#11   MeSH descriptor: [Rehabilitation] explode all trees   38197
#12   #10 OR #11   79878
#13   MeSH descriptor: [Rehabilitation Nursing] explode all trees   56
#14   #12 OR #13   79878
#15   #4 AND #9 AND #14   58
#16   (requirements* OR work* OR staff* OR "Health Services Needs"):ti,ab,kw   120384
#17   MeSH descriptor: [Workload] explode all trees   406

#18 MeSH descriptor: [Workforce] explode all trees 422
#19 MeSH descriptor: [Personnel Staffing and Scheduling] explode all trees 635
#20 MeSH descriptor: [Patient Acuity] explode all trees 20762
#21 #17 OR #18 OR #19 OR #20 21765
#22 #15 AND #21 31

Search Process

Exported results from databases to EndNote, removed duplicates, also removed non-English articles and trial registrations, conference abstracts, editorials, and commentaries. Copied annotated bibliography for search results into word for screening title and abstracts. Studies identified by the search (n=278) were filtered by study design and relevance – as question was an intervention question, systematic reviews, meta-analyses and RCT study designs were highlighted (n=1). Given only 1 RCT result was returned, the 64 most relevant studies based on titles were sent to the CAT group for review and selection.

Results

First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Walter 2017 Study design: Prospective pilot study	Inpatient rehabilitation unit with patients admitted for spinal cord injury rehabilitation	Prospective cohort pilot study comparing patient dependency scores and nursing resource allocation, using the Functional Independence Measure (FIM) vs Northwick Park Dependency Scale (NPDS-H) FIM high scores = greater independence	N=60; NPDS-H and FIM scores collected over a 4-month period; stronger relationship between nursing resource allocation based on the NPDS-H scale (12 items) vs the FIM (18 items).	Small sample size, various stages of recovery, data collected on day shift only. **The NPDS-H (vs FIM) better reflected nursing workload allocation for patients with SCI during the study period.** Further study is needed to examine use of the tool across all shifts, with larger sample sizes, and with staffing adjustments based on the tool.

Summary

There is limited evidence to directly answer the CAT question. There is some evidence (from spinal cord injury rehabilitation) that the Northwick Park Dependency Scale is better at informing nursing workload allocation than the FIM. There is also some evidence that the FIM collected on the day of admission to inpatient rehabilitation more accurately captures the burden of care than FIM scores collected after that day. However, more research is needed to evidence the use of the FIM in inpatient rehabilitation settings to inform nursing workload allocation.

Implications for Practice/research

Current measures/tools do not capture all elements of 'nursing workload' as reflected in inpatient rehabilitation settings. Further research is needed to improve an existing tool, compare tools, or develop a new tool that more accurately identifies the nursing resources needed in inpatient rehabilitation.

What would you tweet? (140 characters)

There is insufficient evidence to justify using the FIM to inform nursing workload allocation in inpatient rehabilitation. The FIM is not a tool that was designed or validated to determine workload allocation.

Critical Appraisal Topic Group Team Members

Theresa Green (lead), Lars Erikkson (Librarian), Scott Parkinson, Ben Hackwood, Cecelia Boyd Orford, Anh Nguyen

References

Walter, E., et al. (2017). "**Comparison of dependency scores to assess resource allocation for patients with spinal cord injuries.**" Journal of the Australasian Rehabilitation Nurses' Association (JARNA) **20**(1): 16-25.