Nursing in United States Healthcare Facilities RCT Review

Posted on October 2, 2019

Introduction

In healthcare and research studies, the evidence-based literature review, selection and usage are of great importance. It not only helps in developing the appropriate research foundation but also helps in identifying the factors, variables and elements that significantly impact the validity, reliability and long-term effectiveness of the research studies. For this purpose, it is important that great care is taken when developing a search methodology and choosing the appropriate journals and articles for further research and analysis. For the sake of this paper and narrowing down the scope of the paper, we will focus on evaluating and analyzing the quality of the Randomized Control trial-based studies (RCTs). For this purpose, and for the comprehensiveness of this paper, we will search for RCT studies on the subject of 'Importance of Nursing in Healthcare Facilities in the United States.'

The health care research studies are an essential resource to direct clinical basic leadership and research. The review analysis of the methodology-based reliability and verifiability of studies is a basic advance during the time spent choosing the best clinical research studies. As per [2], appraisal of methodology-based reliability and verifiability includes a review analysis of internal validity and external validity and, in addition, a measurable examination of essential research. Collectively, these validity builds are vital in deciding the methodology-based reliability and verifiability of essential research. [1] brought up that a few purposes behind performing reliability and verifiability appraisal include deciding a base reliability and verifiability threshold for the choice of the essential studies for an article analysis, investigating contrasts in reliability and verifiability as a clarification for heterogeneity in study results to measure the results in the extent to the reliability and verifiability in meta-examination; and, all the more significantly, to manage interpretation of discoveries, help decide the reliability and verifiability of inductions, and guide proposals for future research and clinical practice.

Background

The review analysis of the reliability and verifiability of controlled trials is basic since varieties in the reliability and verifiability of trials can influence the decisions about the current proof. A review of trials evaluating principally human services medicines [3] showed that trials that did exclude features, for example, blinding and allotment covering, tended to report an overstated treatment impact contrasted and trials that included these features. These actualities underscore the significance of

methodology-based reliability and verifiability review analysis keeping in mind the end goal to give precise data on helpful impacts.

The ID of reliable and valid criteria to survey the research studies on a particular subject limits the odds of blunders while deciding the reliability and verifiability of the logical research studies. Along these lines, the motivations behind this article analysis were to outline the substance, development, territories of advancement, and psychometric properties of criteria used to evaluate the reliability and verifiability of randomized controlled trials (RCTs) in social insurance research and to distinguish suitable criteria to evaluate methodology-based reliability and verifiability of RCTs in the domain of Importance of Nursing in Healthcare Facilities in the United States.

Methodology

Search Strategy And Approach

A web-based search through online databases was performed to distinguish relevant articles. For this review, the research studies were searched for distributed studies depicting or utilizing criteria to evaluate the methodology-based reliability and verifiability of RCTs in healthcare research.

The studies were searched in all dialects as indicated by the search methodology. The search included studies from 2005 to 2017, which were obtained through an extensive search of online databases that included MEDLINE (2005-2017); EMBASE (2005-2017); CINAHL (2005-2017); and EBSCO (2005-2017). Key words used in the search were: “randomized controlled trial”, “healthcare”, “institutes”, “interventions”, “nurses”, “United States” and “registered nurses.” Subject subheadings and some word truncations, as indicated by every database, were utilized too to delineate conceivable catchphrases. The choice of these terminologies was made with the assistance of a bookkeeper who works in health sciences databases. Moreover, the research studies search additionally included a manual search of catalogs of the recognized papers, searching for key creators and relevant data to meet the goals of this study. Furthermore, each study in which the first criteria improvement was depicted was followed through the Online databases database so as to get to all studies that referenced the first criteria advancement.

Inclusion And Exclusion Of Articles

Distributed studies giving an account of criteria advancement or the psychometric review analysis of criteria were qualified for incorporation. The incorporation basis was distributed criteria created to evaluate methodology-based reliability and verifiability of RCTs in any zone of healthcare research. No unpublished criteria were incorporated. Criteria were rejected on the off chance that they were produced for the investigation of the methodology-based reliability and verifiability for just a single particular article analysis or if the advancement of the criteria was not depicted and the psychometric

properties of the criteria were not tried. In light of this data, we trust that, despite the fact that the incorporation of these rejected criteria would enormously expand the number of criteria in this review, these criteria would not contribute to the results since they were, in all probability, not grown systematically. Agendas that unmistakably were not intended to be summed additionally were rejected from this article analysis.

The subsequent stage included removing the data with respect to the substance, development, extraordinary features (region of advancement, number of things, how things were chosen for incorporation, time to finish, how criteria and things were scored, the utilization of rules), and psychometric properties for each criterion. Psychometric properties that were removed and broken down were confront validity, content validity, develop validity, simultaneous validity, internal consistency, and reproducibility. The reviews used [4] to determine the reliability and verifiability of estimation properties. To put it plainly, reliability and verifiability of estimation included internal segments of validity and the external segment of validity. Furthermore, interrater reliability was likewise considered.

Criteria were distinguished as being critical to exercise-based recuperation if the creators particularly expressed that the criteria were produced for the active recuperation rehearse zone or were created by a gathering of physical specialist researchers or if the Online databases search recognized that the criteria were utilized as a part of no less than two active recuperation reviews.

Research Studies Review

Prisma Review

The underlying electronic database search of the research studies resulted in an aggregate of 8500 articles. Of these, 70 were chosen as potential studies in light of their titles and edited compositions. After the total article was perused, be that as it may, just 23 of these really satisfied the underlying standard. The remaining papers were avoided in the wake of perusing the entire article. The fundamental purposes behind rejection were: (1) the device was an agenda and not a criterion, (2) the instrument was created for a solitary article analysis, and (3) data with respect to the criteria's development, improvement, and psychometric properties was absent or difficult to acquire.

Every unique criteria was followed in the Online databases database, keeping in mind the end goal to locate any extra data that could add to the psychometric properties of the chosen criteria. An aggregate of 3,500 articles were found by following each criterion.

Fifty-two articles were additionally obtained through a manual search engine search (lists of sources of the distinguished papers and key writers). Subsequently, an aggregate of 137 studies were at long last incorporated into the study and investigated.

- Search Strategy
- Manual Search Engine Searches
- 3500 results
- Database Searches
- 8500 results
- 70 potential studies
- 85 potential studies
- 23 selected
- 52 selected
- 114 studies Selected

After exclusion/inclusion criteria, 58 studies selected

Article Analysis And Evaluation

Based on the above-discussed concerns and the scope of evaluating RCTs, the following is a brief analysis of 3 selected studies from the search results.

Study Review 1

For the purpose of this discussion, the article “Effectiveness of Aspiration Risk-Reduction Protocol” was analyzed to determine the internal validity. Internal validity discusses whether the independent variable caused the proposed outcome within the study or not. It is important to determine internal validity because the study needs to be conclusive with reliable reasoning based on the evidence that is presented. There are several aspects of this study that do not support the idea that it is reliable and valid.

The study was a simple yet very important one, focusing on the effectiveness of the risk-reduction protocol for aspiration. However, the focus of this analysis was to identify any internal validity issues in the study. While the study was very comprehensive, it had multiple aspects that threatened the internal validity. Some of these concerns are:

1. Insufficient and inappropriate conditions for the control group management.
2. Inefficiency of the researchers to follow the research design properly.

The first concern, i.e., regarding the control group management and functioning, risks the internal validity of the study. For instance, the Head of Bed for the control group was supposed to be less than thirty degrees. However, nowhere in the study is it mentioned explicitly that the head of the bed level for the control group was properly recorded and documented for future reference. With such a loophole, the validity of the results is greatly put at stake.

The second concern is more critical. For any study to be reliable and considered valid, it is important that it must have a properly designed and rationally appropriate research design/framework (Godwin et al. 2003). However, this condition was greatly ignored by the research. The researchers failed to follow the study designs and the protocols that they had demarcated before the experiment was conducted. This greatly highlighted the incompetence and negligence of the researchers.

In order to overcome these issues of internal validity, the following are some of the recommendations:

1. The nurses must record and properly document the head of bed level for each group explicitly. This level must remain consistent throughout.
2. The researchers must create strict protocols for the research study design. This protocol must be strictly followed, or else the experiment must be considered null and void.

Addressing these issues is of great significance as the lack of internal validity compromises the reliability, integrity and verifiability of the study.

The research article explores aspiration risk in patients who are critically ill and on a mechanical ventilator receiving tube feedings (Metheny, Davis-Jaconsin, & Stewart, 2010). Each participant had to be at least 18 years of age and not have pneumonia prior to the start of the study. There were two groups of independent variables, one being the usual care group and the second being the Aspiration Risk-Reduction Protocol group (ARRP) (Metheny, Davis-Jaconsin, & Stewart, 2010). The researchers used a three-component intervention for patients in the ARRP group: the first being that the head of the bed was equal to or greater than 30 degrees, the second being feeding tubes were inserted in the distal small bowel and the third being that they used an algorithm for high gastric residual volumes (Metheny, Davis-Jaconsin, & Stewart, 2010). There were many times that the study was not seen as being reliable and the internal validity was in question.

First, the evidence showing that the validity was in question is that there was a large time gap between the usual care group studied and the ARRP group (Metheny, Davis-Jaconsin, & Stewart, 2010). The first study was done between 2002-2004 for the usual care group and the ARRP group was not studied until 2007-2008 (Metheny, Davis-Jaconsin, & Stewart, 2010). There was no explanation for the time gap, and as time goes on, so do clinical approaches and recommendations in treatment. The researchers should have conducted the studies within a closer time frame or at least mentioned why the studies were done with such a large gap between the groups.

Secondly, there was a large difference in the sampling sizes used between the usual care group and the ARRP group. The usual care group had 329 participants, while the ARRP group only had 145 participants (Metheny, Davis-Jaconsin, & Stewart, 2010). The large difference in the number of participants could skew the statistical results that were given to support their research. To solve this large discrepancy, the reserachers could have used the same number of participants between the usual care group and the ARRP group.

Lastly, chart reviews were done to determine if the three-pronged component list that the researchers

were using was followed. This could be inaccurate for their data because there was no information given as to what each facility used for their charting. There are many different types of charting that are done throughout hospitals, and some use paper while others use electronic charting. Likewise, there is no evidence to show that nurses were not already implementing the intervention of keeping the head of the bed elevated prior to the researchers providing training (Metheny, Davis-Jaconsin, & Stewart, 2010). Nurses are taught in nursing school to keep the head of the bed elevated above 30 degrees when the patient is receiving tube feedings, and although it may not have been charted, it could still have been done.

Overall, there needs to be more research done to determine if the three-pronged component research study performed has true valid results. This is not to say that the researchers in this study did not have good ideas that could be explored further, but the evidence cannot be explicitly seen as an implication for practice change in nursing. When you fail to determine the validity of the research as the reader, you could be using the results shown in practice without the results being true and reliable.

Study Review 2

Evidence-based practice emerges from research study results, which in turn leads to changes in everyday practice by nurses around the country. The need for internal validity is paramount to ensure that changes made to practice based on research results are true and accurate (Polit & Beck, 2017). The study I chose was by Padula, Highes & Burkholder, “Impact of nurse-driven mobility protocol on functional decline in hospitalized older adults.” this study looked at the implementation of a nurse-driven mobility protocol on elderly adults and the impact it had on the length of stay (LOS) and functional status with or without the protocol. The independent variable was the mobility protocol, and the dependent variables were the loss and functional status.

The first issue I saw was when looking at the fall risk scores prior to the start of the study; the treatment group had a lower fall risk score than that of the control group, which could itself lead one to believe that the functional status of the treatment group was higher than that of the control group prior to the start of the study. This would lead one to believe that the mobility protocol did not change the functional status of the experimental group since they were less of a risk to start with. Internal validity must prove that another factor did not cause the observed action.

Another issue I saw with this study was that when the evaluation of the treatment group was at the end of the study, the treatment group’s perception of function was decreased from their perception at admission, leading one to think that they did not feel the mobility protocol helped improve the perception of function.

The first strategy to strengthen this study would be to perform a manipulation check to determine I the participants level of understanding of the mobility protocol (Polit & Beck, 2017).

Possibly the biggest strengthening measure for this study was to ensure that participants in both group's treatment and control were equal in their level of functioning so that results could be generalized to the entire population. When the groups within a study are equal then the results are stronger and can be reproduced (Polit & Beck, 2017).

Failure to establish a valid study allows others the ability to look at the study and find discrepancies and problems within the study, thus invalidating the results. But even more important is when a study reports the need for changes in care patterns based on study results. If those results are not accurate, then a change to patient care could result in the development of further care issues that put patients at risk.

Study Review 3

The third study is "An Intervention Program to Promote Health-related Physical Fitness in Nurses" by Yuan, S., Chou, M., Hwu, L., Chang, Y., Hsu, W., & Kuo, H. (2009). The study design used in this article was an experiment and RCT study. Quasi-experimental designs are especially vulnerable to internal validity threats. In this article, there are four threats to internal validity, including selection, history, maturation, and mortality. According to Polit & Beck (2017), selection biases can interact from time to time with history, which can make the threat to internal validity more complex. In this study, the nurses in the control group performed their usual work habits and did not participate in any interventions, while the nurses in the experimental group exercised every day after work on the stair-stepper (Yuan, Chou, Hwu, Chang, Hsu and Kuo, 2009). There is a likelihood that this could lead to different intervening experiences in both groups.

Maturation is a threat to internal validity in this study since in the beginning of this study each group consisted of 45 participants, however, in the control group one participant fell ill and three others quit their jobs leaving the group with 41 subjects (Yuan, 2009). Some of the aspects of maturation can be physical growth, emotional maturity, and fatigue. Fatigue may have been a cause of some of the subjects not completing the study because of heavy workloads and time constraints.

Selection is another of the threats to internal validity in this study. The participants in this group were not randomized. Yuan et al. (2009) pointed out that the subjects were self-selected and not randomized and that most of the subjects in the experimental group were married and had a heavier workload than those in the control group.

When conducting a research study, internal validity is important. It will prove whether or not a researcher can positively state the effects described in the study were due to the use of the independent variable and not to another factor.

Discussion And Conclusion

This paper evaluated the substance, development, regions of advancement, and psychometric properties of criteria used to evaluate the reliability and verifiability of RCTs in healthcare research. The discoveries of this study showed that countless and adjusted criteria are accessible in the research studies to evaluate methodology-based reliability and verifiability in various healthcare territories.

The criteria dissected in this review varied in a few angles, for example, the territory of improvement, many-sided reliability and verifiability, length, sort of things, and significance given to the included things. The criteria adjustments were performed in most of the cases to adjust criteria to a particular point. The essential criteria were ordinarily created with the goal of examining the reliability and verifiability of RCTs in a particular territory and the things that cover points that are imperative to that zone. [6] for instance, built up criteria to investigate clinical trials on the utilization of headache medicine in coronary illness studies and incorporated a thing about the taste and appearance of the medication in the criteria. This thing is vital for this kind of study since it gives data with respect to the genuine blinding of the patients. Nonetheless, this thing would turn out to be totally unseemly when utilizing this criterion to dissect the reliability and verifiability of a nonpharmacological study. In light of this reality, numerous creators changed unique criteria so they could utilize them in an article analysis on a point not the same as the one for which the criteria were initially created. In any case, in the event that one single thing is added to or taken from criteria, if the weighting system is changed, or if some other minor change is played out, the psychometric properties of the first criteria might not be any more relevant.

A changed criterion created from validated and reliable essential criteria can’t be viewed as valid and reliable unless it is tried for validity and reliability itself. As indicated by [6], alterations of existing criteria frequently require new validity studies. This implies the psychometric properties of the adjusted criteria must be evaluated to guarantee that the new criteria can really distinguish papers with great or awful methodology-based reliability and verifiability. The vast majority of the criteria utilized as a part of the exercise-based recuperation region are alterations of the Delphi List. This criterion, be that as it may, did not take after any further validation process and, thusly, can’t be thought to be as valid as the first.

The utilization of altered criteria is a stage forward in making criteria particular to every zone; be that as it may, they ought to be utilized with alert as a result of the absence of data about their development, applicability, and psychometric properties. A few reports [7] did not represent this reality and viewed a changed criterion as another criterion. Be that as it may, this misconception included disarray about the quantity of existing criteria in the research studies. The article analysis gathered the greater part of the first criteria and their adjustments to feature the way that there are couple of unique criteria with clear and announced psychometric properties. By and by, numerous adjustments to these criteria have happened without considering another validation procedure. These

unvalidated “new” criteria have been uninhibitedly utilized as a part of health care research, which makes the interpretation and the validity of the results of these criteria significantly more mind-boggling and open to address.

Reliability and verifiability appraisal instruments must be produced by the standards used to make the criteria. Be that as it may, most instruments dissected in this study have not been created thoroughly. Our results are in concurrence with those obtained by [7]. It has been recommended that some particular issues must be addressed when building up a criterion: meaning of the reliability and verifiability development, meaning of the degree and motivation behind reliability and verifiability review analysis, meaning of the number of inhabitants in end-clients, choice of raters, and trial scoring. Validity proof, for example, the internal part of validity and also the external segment of validity, are expected to help the utilization of criteria to quantify the methodology-based reliability and verifiability of RCTs. Reliability is likewise are vital contemplation when building up an apparatus [8].

Likewise, with any technique, review analysis of methodology-based reliability and verifiability is inclined to inclination. In this way, to be predictable and maintain a strategic distance from inclination, researchers should utilize vigorous instruments that can unbiasedly evaluate methodology-based reliability and verifiability. Be that as it may, which issues are relevant to consider for reliability and verifiability review analysis apparatuses? As indicated by our results, randomization is a standout amongst the most generally utilized things crosswise over various criteria to gauge methodology-based reliability and verifiability. It has been demonstrated that the absence of randomization can change the treatment impacts. [9] found that trials that were not randomized had a 59% distinction in the event that fatality rates in the treatment bunch contrasted and the control gathering, while trials with randomization had a 25% distinction and blinded randomized trials had a 9% distinction. Portion camouflage was considered in 45% of the dissected criteria in our article analysis. Lacking distribution disguise has appeared to create a 40% distortion of treatment impacts in clinical trials that detailed allotment camouflage deficiently contrasted and trials that announced it sufficiently [9]. As indicated by these discoveries, in this way, randomization and also allotment covering ought to be evaluated while surveying methodology-based reliability and verifiability since they dispose of study choice and perplexing predispositions [9].

Blinding was another thing as often as possible utilized by the criteria studied in this paper and has been observed to be an essential thought while evaluating methodology-based reliability and verifiability. [10] found that trials with no twofold blinding strategy expanded the treatment impacts by 20%. These results are in concurrence with those of [8], nonetheless, as per the results of [10], twofold blinding did not essentially influence the review analysis of impact.

Moreover, example measure figuring was a thing as often as possible by the criteria, and it has appeared to be critical for methodology-based reliability and verifiability. Trials with little example sizes have to a greater degree a hazard for a sort II mistake. For instance, [5] found that the clear majority of the trials with negative results did not have a sufficiently huge example estimate,

prompting incorrect conclusions and squandering of resources. In this manner, test estimate is a vital issue while evaluating methodology-based reliability and verifiability in light of the fact that if trials are not satisfactorily fueled, they will most likely not demonstrate an impact.

In view of the discoveries of this literature analysis, numerous criteria are being utilized to evaluate the methodology-based reliability and verifiability of RCTs in healthcare research. A large portion of the broken-down criteria did not take after methodology-based benchmarks amid advancement and have not been tried for validity and reliability in the territories to which they have been connected. Our discoveries show that no criteria that are being utilized to evaluate the reliability and verifiability of active recuperation research have been subjected to a deductively thorough advancement or to testing for validity and reliability. Along these lines, the researchers ought to be careful when utilizing a criterion to survey methodology-based reliability and verifiability of essential research articles. Criteria confinements ought to be thought about and the data furnished by criteria ought to be interpreted with great care.

References

Metheny, N. A., Davis-Jackson, J., & Stewart, B. J. (2010). Effectiveness of an aspiration risk-reduction protocol. *Nursing Research*, *59*(1), 18-25. doi:10.1097/NNR.0b013e3181c3ba05

Padula, C.A., Hughes, C. & Baumhover, L. (2009). Impact of a nurse-driven mobility protocol on functional decline in hospitalized older adults. *Journal of Nursing Care Quality*, 24(4), 325-331.

Yuan, S., Chou, M., Hwu, L., Chang, Y., Hsu, W., & Kuo, H. (2009). An intervention program to promote health-related physical fitness in nurses. Journal of Clinical Nursing, 18(10), 1,404–1,411.