Free essay on methods: statistical parameters and criteria for inclusion

On Depression is a Risk Factor for Noncompliance with Medical Treatment: Meta-analysis of the Effects of Anxiety and Depression on Patient's Adherence

Background

Depression and anxiety are among the most common affective disorders in the field of medicine. These disorders have been associated with deteriorating health status and more spending on the use of health care. It has been established in some research that depression and anxiety further complicate medical treatments of patients. However, the cause of these complications has not yet been completely realized. There may have been direct and indirect effects that facilitate anxiety and depression that leads to noncompliance of patients to their medical treatment. Some of the factors identified include adverse conditions of the body physiology and behavioral phenomenon respectively. Noncompliance to treatment recommendations--a consequence of depression and anxiety--is a result of disbelief in the efficiency of treatment, financial problems, or the lack of support from family members.

In a study undertaken in the year 2000, Doctor DiMatteo and colleagues published their findings on the link between non-adherence to treatment and affective disorders like depression and anxiety. In their report entitled " Depression is a Risk Factor for Noncompliance With Medical Treatment: Meta-analysis of the Effects of Anxiety and Depression on Patient's

Adherence" they attempted to provide a logical answer to the main question how does mood disorders affect a patient's compliance to follow treatment procedures. To answer this question, the objective of their research is to assess and determine the effects of anxiety and depression to poor compliance of patients to medical procedures by way of reviewing literatures and quatitatively asssesing these literatures through meta-analysis.

MEDLINE and PsychLit databases with a period coverage from January 1, 1968 to March 31, 1998 were considered for meta-analysis. Patients who were given preventive- or treatment-related recommendations were included for the analysis. Treatment guidelines were used as a proxy for the category adherence-of-patients. The criteria for treatment guidelines were as follows: prescribed treatments, exercise, diet, medication, health-related behavior, screening, vaccination, and appointments. Community-based research was excluded in the study. This is because it makes it difficult to standardize the level of adherence. Therefore, the sole focus of the study is on the direct one-on-one patient-doctor interaction vis-à-vis the compliance on treatments recommendations. Only those that were medically prescribed were included in the study. Other specific criteria that were included are the following: (1) published journal articles must be peer-reviewed (i. e. conference proceedings, book chapters, and non peer-reviewed journal articles were excluded); (2) there must be a clear-cut definition of the concept of adherence as well as a well-defined method; (3) sample population are not undergoing psychiatric treatment; (4) non-psychiatrist doctors must prescribe the medical regimen; (5) the study design should not

experimentally change the variable of adherence; (6) sample size must be greater than 10 individuals; and (7) t- and F-statistics as well as chi-square must be the parameters used to determine the size effect of r. The articles were coded according to the criteria of inclusion.

Only 12 articles linking depression to adherence and 13 articles linking anxiety to adherence satisfied the criteria that were set for meta-analysis. During statistical analysis and synthesis, each study was considered as one unit. Statistical parameters that were considered include: median effect sizes, unweighted and weighted mean r effect size by n-3, odds ratios, risks differences, relative risks and d effect sizes. A test of heterogeneity was also made to determine if the specific state of disease (i. e. terminal stage of cancer) and treatments may affect the significance of the findings. In the twelve depression-related articles that satisfied the inclusion criteria six studies were grouped into end-stage renal disease or dialysis. The other six involved other diseases such as cancer, general medical care and rheumatoid arthritis.

Significant Results

The twenty five articles about depression and anxiety combined satisfied the criteria set for meta-analysis. The " fail safe n" for unweighted mean r is 142. This result indicates that to lower the effect of depression to insignificant level (i. e. at p> 0. 05), it would require 142 new unpublished and studies that were not retrieved that suggest there is an absence of influence of depression over adherence. Among every 100 non-compliant patients, there is a mean of 63. 5 patients that may be expected to be depressed while on

average, 36. 5 patients are not depressed. This means that there indeed exists a relationship between depression and adherence. The expected result when a relationship between two factors is nonexistent is a 50/50 split. As the standardized odds ratio indicated, the odds for depressed patients to be non-compliant as opposed to non-depressed patients is three times higher (odds ratio= 3. 03, p= 0. 008). Heterogeneity test also supports the relationship between depression and non-adherence. Further, it has been suggested that non-adherence of depressed patients when involved in renal disease studies is not a novel case. Depression and adherence can be also generalized to diseases other than kidney failure (odds ratio= 2. 77, p= 0. 005). However, the overall influence of renal disease is stronger and the individual effect appears to be variable in the subgroup of end-stage renal disease.

There is a minimal relationship that was noted between anxiety and adherence. However, the median effect size is zero and is also insignificant. The result is opposite to depression where the odds ratio is equal to 3. 03 at a 95% confidence interval. Thus, combining the 13 studies that were gathered about anxiety appears to be difficult. This is because there is too much variability and the test for heterogeneity is significant. In this study, DiMatteo and colleagues (2000) have not successfully established the relationship between anxiety and depression because they failed to find the factors that could homogenize the studies.

Critique

Meta-analysis has been widely used to find patterns and trends of a series of studies. This approach puts more value when making generalizations about various quantitative studies. However, the problem with meta-analysis is that it is only bias to zero-order correlations of independent and dependent variables. There has also been a bias with regard to the inclusion of studies. Most studies that were subjected to meta-analysis came from renal diseases. Only few diseases such as cancer were considered when in fact, cancer patients seems to be one of the most emotionally challenged. This is because cancer patients also deal with pain management aside from the other side effects of chemotherapy. While variations increase the generalizability of results as was in the case of depression, it also creates confusion when the results are unclear as demonstrated in the results of anxiety. Still DiMatteo and colleagues (2000) used appropriate statistical methods to analyze their data and have provided logical conclusions that are within the confines of the limitations of their study.

That depression is related to non-compliance has been well-established. Depression has been related to a feeling of hopelessness which makes it very possible for patients not to comply with treatment regimens prescribed by physicians. This mood disorder is also related to social withdrawal and isolation. Therefore, it is important that there is enough support from family members when dealing with a debilitating illness. Sometimes, depression is also linked to listlessness thereby making patients to forget their treatment regimen. However, non-compliance is affected by several factors. It has been suggested that multidimensional models must be tested thoroughly so as to

understand how depression affects non-adherence. The unclear relationship between anxiety and adherence makes it problematic to establish that anxiety has completely no effect on adherence. The summary statistics that were used sometimes tend to miss the many facets of anxiety because the studies are being homogenized. In certain cases however, test for homogeneity is important when dealing with a unified assumption because equal variances must be shared for all populations. But anxiety can be also a result of panic, or even an obsessive-compulsive disorder that have no association with non-compliance. Anxiety also co-occurs with depression. So this scenario in itself blurs the concept of anxiety. Correlation studies cannot determine causal factors unlike experimental analyses. However, correlation studies can be a jumpstart to further refine concepts and theories that will help in the improvement of medical practices. And this is how the study successfully demonstrated the essence of meta-analysis.

Conclusion

Reference

DiMatteo, M. R., Lepper, H. S. and Croghan, T. W. (2000). Depression is a Risk Factor for Noncompliance With Medical Teeatment: Meta-analysis of the Effects of Anxiety and Depression on Patient's Adherence. Archives of Internal Medicine, 160: 2101-2107.