

Critical evaluation of a research article

[Health & Medicine](#), [Cancer](#)



Introduction

This work presents a critical evaluation of the research article entitled, ' How traumatic is breast cancerPost-traumatic stress symptoms (PTSS) and risk factors for severe PTSS at 3 and 15 months after surgery in a nationwide cohort of Danish women treated for primary breast cancer', written by O'Connor et al. and published in 2011 in the British Journal of Cancer, volume 104, pages 419-426. The evaluation provides a description of the aims, findings and arguments put forward in the article, a critical appraisal of the issues, theories and concepts included in the article and an assessment of the sources of information used in the article.

The title of the article - How traumatic is breast cancerPost-traumatic stress symptoms (PTSS) and risk factors for severe PTSS at 3 and 15 months after surgery in a nationwide cohort of Danish women treated for primary breast cancer - is an accurate representation of what is included in the article, as the article, indeed, talks about PTSS and risk factors for severe PTSS in Danish women treated for primary breast cancer. The title is a very accurate description of what is included in the article.

The aim of the article is clear: as noted in the abstract for the article, the stated aim of O'Connor et al. (2011; 419) was to, "...explore the prevalence of and risk factors for cancer-related PTSS in a nationwide inception cohort of women treated for primary breast cancer". The clarity of the aim, coupled with the clear and accurately descriptive title, allows the reader of the article to orient themselves as to what the authors will be discussing in the body of the article. It is easy for the reader to feel that the authors ha a clear idea of

what their research was, where it fits in the body of research and literature in this subject and, on this basis, how they would carry their research out.

The objectives of the article are not made so clear by the authors, but it can be understood, from the very clear stated aim, that the objective of the article was to determine what the prevalence and risk factors are for PTSS in primary breast cancer survivors in Denmark. In terms of the rationale for the study, the authors make clear, in the first sentence of the abstract, that the literature in this area, whilst extensive, is not concurrent, in that there are variations, across the reports in the research, as to the prevalence of PTSS in women living with and recovering from breast cancer. The rationale of the O'Connor et al. (2011) study was, therefore, to add to the literature in this area with a definitive study of PTSS, and its risk factors, in a sample of Danish women.

A search of PubMed, for example, using the search terms 'breast cancer PTSS' returns five results: the O'Connor et al. (2011) article; an article by Andersen et al. (2008) looking at the search for sense in breast cancer survivors with low quality of life; an article by Morrill et al. (2008) looking at the interaction of post-traumatic growth and PTSS on the presence of depression in breast cancer survivors; an article by Tjemsland et al. (1998) looking at PTSS in breast cancer survivors one year after surgery; and the fifth and final article which is not relevant to the topic. It is clear, therefore, that the rationale for the study is valid: there are, indeed, few published articles looking at the specific research topic proposed by O'Connor et al. (2011).

In terms of the sample and data collection, as O'Connor et al. (2011) note, the sample for the research was 4917 women from Denmark, aged between 18 and 70, all of whom had been diagnosed with, and were recovering from, primary breast cancer and who had undergone surgery for their breast cancer during a very specific time period, namely October 2001 and March 2004. In terms of the inclusion criteria for the sample, it was important that all women included had no history of other cancers and that the women could read and write in Danish (to ensure that they fully understood, and could respond to, the questionnaire used to collect the data). It is important to note that all women selected for inclusion in the O'Connor et al. (2011) research were breast cancer free at the time of the data collection.

The women's medical histories were checked and only women treated via the same treatment modality, namely the standardised guidelines as set out in the Danish Breast Cancer Cooperative Group, were included in the sample used in the research. This was to ensure that the women had all received the same treatment, at the same time, to ensure that any potential bias was reduced. Bias could have been introduced, for example, if the women selected for study had been in recovery for longer or if the women had all received different treatment modalities or if the women was still living with breast cancer: by selecting women on the basis of a certain date for the surgery, and a certain treatment modality, and by applying the strict inclusion criteria, the researchers minimised the potential effects of bias, ensuring as high a possible validity and reliability for the results found (Gerrish and Lacey, 2010).

As Roberts et al. (2006) note, "...reliability and viability are ways of demonstrating and communicating the rigour of research processes and the trustworthiness of research findings". For research to be helpful, the research process and the results reported need to be as clear and transparent as possible: misleading information will cause the reader to doubt the research process and, therefore, the validity of the results reported. As Roberts et al. (2006) suggest, the trustworthiness of a research article depends on many factors including the research question posed, the initial research question, the ways in which the data is collected, the ways in which the data is analysed and the conclusions that are drawn from the findings presented (see, also, Cormack, 2000). At the moment, on the basis of the research question posed and the data collection methods, the O'Connor et al. (2011) seems to be trustworthy and, therefore, reliable. Reliability, in this context, can be understood as the degree to which a particular set up can, "...produce similar results in different circumstances, assuming nothing else has changed" (Roberts et al., 2006).

Regarding the data collection method, O'Connor et al. (2011) utilised a mailed-out questionnaire to obtain data from the sample of women regarding their post-traumatic stress symptoms, as measured using the IES, which is utilised widely in the literature as a measure of PTSS, given the strong correlations in interviews between IES scores and clinical diagnoses of PTSS. Additional covariates were gathered from the women via the questionnaire, including demographic and socioeconomic variables such as age, marital status, number of children, income, educational level, social status and net wealth, amongst other variables (O'Conner et al, 2011). These variables

were collected in order to test, statistically, the relationships between the degree of PTSS found in the patients and all of the variables, to see if there were any pervasive links between the presence of PTSS and any particular variable. It could be, for example, that a patient's age predisposes them to be more likely to experience PTSS following surgery for breast cancer, or that the person's educational attainment affects their likelihood of experiencing PTSS. It was important, therefore, that O'Connor et al. (2011) controlled for all potentially confounding variables, in order to be sure that any relationship found between the presence of PTSS and the most probable risk factors were actually true and not simply an artefact of the data collection method (Black, 1999).

In terms of the data analysis, the data analysis was conducted using non-parametric tests, namely Mann-Whitney or Kruskal-Wallis (O'Connor et al., 2011). Comparisons between the independent variables and the PTSS score, as measured via the IES, were conducted using chi-squared tests. Adjusted analyses were conducted using logistic regressions with PTSS being the dependent variable (O'Connor et al., 2011). The results found were reported as adjusted odds ratios (O'Connor et al., 2011). It can be seen, therefore, that the statistical tests used were appropriate for the type of data collected: the use of non-parametric tests, for example, was appropriate, given the fact that the variances were found to differ markedly amongst respondents (Bryman and Cramer, 1990). The use of the chi-squared test in this case is also appropriate, as discussed in Siegel (1957), given the fact that all participants were independent and that frequency data was collected from the participants via the questionnaire. Overall, then, the selection and use of

the statistical tests to analyse the data were appropriate, giving confidence that the data analysis was conducted appropriately and that the results found from the analyses are reliable.

Regarding the interpretation of the results and the main findings of the article, around 20% of the women surveyed exhibited PTSS at 3 months after surgery, reducing to around 14% at 15 months following the surgery (O'Connor et al., 2011). Regarding the predictors of PTSS in women surviving breast cancer, the presence of severe PTSS was related to older age at 3 months post-surgery. Being a mother of small children also increased a woman's chances of developing PTSS following their surgery. The data analysis also found that several socioeconomic variables were also strong predictors of PTSS: education, occupational status, personal income and household net wealth (O'Connor et al., 2011). Higher educational attainment was strongly related to a reduced chance of developing PTSS. It is clear, then, that there are various factors that are related to a woman's chance of developing PTSS following surgery for primary breast cancer.

In terms of whether the article makes any contribution to the field of health psychology, it is clear from the article that there are various factors that are related to a woman's chance of developing PTSS following surgery for primary breast cancer. Given the strong link between these factors and the development of PTSS, there is an argument to be made that women patients with breast cancer who have such risk factors should be offered counselling pre- and post-surgery in order to be able to help to mitigate the risk factors and help these women to avoid developing PTSS.

Regarding the conclusion of the article, in terms of whether the conclusions drawn are justified, as has been discussed in the critique of the article, the authors took every precaution possible to ensure that the sample selection and data collection were designed in such a way that the risk of bias was minimised, this increasing the reliability and validity of the findings, and conclusions, presented in the article. This means that the conclusions drawn are not only justified, in terms of the aim of the article, but also that the conclusions from the article can be considered robust and, therefore, trustworthy. The significance of the article, in terms of the contribution it makes to knowledge in this area is great. As O'Connor et al. (2011) themselves note, this is the first article to look at the prevalence of, and risk factors for, PTSS in breast cancer survivors. Additionally, given the large sample size of the article and the rigour of the data collection and data analysis, the results obtained can be argued to be very robust (Creswell, 2008) and, therefore, of high reliability.

Regarding the extent to which people who have experienced breast cancer might be helped by the findings of the article, as O'Connor et al. (2011) note, breast cancer and surviving breast cancer is a highly traumatic experience for women. Knowing what factors cause women to experience greater levels of trauma post-surgery is very useful as this knowledge can be used to target those women at greater risk of suffering PTSS and, equipped with this knowledge, delivering counselling to these women to ensure that their risk of developing PTSS is lessened. As O'Connor et al. (2011) suggest, to have this knowledge is akin to being forewarned: pre-emptive measures can be taken to mitigate the potential negative effects of the risk factors and to reduce

the chance of women at risk of developing PTSS. In general terms, then, the article - if its findings were transmitted through the general media - would be helpful to women as women could, if they were at risk of developing PTSS following surgery, seek help themselves from their medical team. As PTSS has been linked to depression and other psychiatric problems in breast cancer survivors (Morrill et al., 2008), any preventative measures that could be offered to such women would help save them from further trauma and help them to live with a better quality of life (Andersen et al., 2008).

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