Author's response to reviews

Title: Factors Contributing to Attrition Behavior in Diabetes Self-management Programs: A Mixed Method Approach

Authors:

Enza Gucciardi (egucciari@ryerson.ca)
Margaret DeMelo (margaret.demelo@uhn.on.ca)
Ana Offenheim (ana.openheim@uhn.on.ca)
Donna E Stewart (donna.stewart@uhn.on.ca)

Version: 2 Date: 15 November 2007

Author's response to reviews: see over
Thank you for giving us the opportunity to revise and resubmit our manuscript. Here, we provided the reviewers’ comments followed by our responses and explained in detail where and what changes were made and underlined the revised text in the manuscript. I believe we have addressed and incorporated most of the reviewers’ comments.

------------------------------------------------------------------------------------------

**Reviewer’s report # 1:**

1. In the introduction, the authors should be aware that there is a meta-analysis and Meta-regression by Ellis and colleagues (2004 in Patient Education and Counseling I think) that identifies other predictors of the effectiveness of DSME.

   The article was reviewed and appropriate changes to the manuscript were made (see pg. 1, 1st paragraph, in blue and underlined text).

2. I would like to see a more information about the Behavioral Model of Health Service Utilization in the introduction and the model discussed in more depth in the discussion.

   More information regarding how the model has been used in the past and the fact that it has never been used to examine issues of utilization and attrition of diabetes self-manage education programs has been added to the introduction (see pg. 2, 1st paragraph). We believe we have two adequate and in-depths paragraphs describing the application of the model and its interpretation regarding access to DSME services (see pg.15, 2nd paragraph under section entitled “Application of the Theoretical Model Used”).

3. In the method I am not sure on the definition of attrition, as it fails to consider the possibility that assessment leads to an individual not needing any additional education etc… So I would like to see more thought on how this definition may have affected the results in the discussion.

   Most patients who are sent to the diabetes education centre are sent there to participate in diabetes self-management education. However, patients who were assessed and educators noted did not require diabetes education in their medical charts were excluded from the study. However, we did include those who were recommended for education, participated in the education, and then were later discharged from the centre. This has been made clear in the methods section, (see pg.4, 1st paragraph).

4. How was number of diabetes related symptoms assessed?

   The number of diabetes-related symptoms were collected from patients’ medical charts at the time of their first visit based on a check list (with designated space for other symptoms not listed) assessed by a diabetes educator and then summed by our research team. This information has been added to the methods section (see pg.6, 1st paragraph).
5. In the results, giving average income in $ is not much help, can it be clarified whether this is Canadian or US, and for non American readers, how does this salary compare to the national mean, may help the international reader put this into context.

The median household income is reported in Canadian dollars, which has been clarified in the manuscript. The median household income for Canadian and Ontarian Families are $72,524 and $79,697, respectively. This information has been added to the results section (see pg. 7, 2nd paragraph) and compared to our study population.

Reviewer's report #2:

1. Because of differences in how health systems are structured to provide diabetes education, this appears primarily applicable to the Canadian health care system. Some discussion of how it might relate to other health systems, particularly those of the readership, is needed.

To address the reviewer’s comment the text below has been added to the manuscript (see pg. 14, last paragraph)

“The attrition rate in this study was 44.2%. One would think that attrition rates within subsidized health care systems such as that in Canada may be lower than in a fee for service type health care system. However, this may not necessarily be the case. Based on a systematic literature review on attrition from diabetes education services by the lead author [58], a wide-ranging proportion of individuals with diabetes drop out of education interventions across countries. The reported attrition rates from diabetes education services in Britain range from 4% to 19% [7,12,48,59], while rates are higher in the United States ranging from 12% to 50% [10,11,60]. Attrition rates in other countries are higher such as, Ireland (41%) [61], Canada (50%) [36] and Japan (35% and 57%) [8,62]. Given the implications on cost, program effectiveness, and the inability to meet the needs of some people with diabetes, attrition is undoubtedly a concern across all health care systems and countries.”

2. Finding education useful was discussed briefly near the end of the discussion section. This is an important issue that needs further exploration. Please discuss how the education is provided and what attempts are made to ensure that it is patient-centered, culturally appropriate (other than language) and limits didactic methodologies. For example, we found that in a problem-based program with no lectures, the mean attendance was 5.2 sessions out of 6 in an urban, inner-city population. The idea of changing the methods or system used to deliver education also needs to be discussed in the recommendations.

We have provided more details on the diabetes education centre’s program in our methods section. We do not feel comfortable in suggesting any other changes than what we have already suggested to how services are delivered, unless it is based on our findings. Below is what we have incorporated into the manuscript (see pg. 3, 2nd paragraph).

“During individual counselling and group education classes, educators address and are responsive to patients’ cultural customs, values, beliefs and literacy level. Family members are welcomed and accommodations are made to include them if a patient’s wishes to do so. A
predominant use of visual aids, low literacy level education resources, and hands-on interactive activities help to facilitate skill development. During individual visits, educators reassess patients’ status and identify their priorities. The most common course for follow-up is face-to-face communication with the same diabetes educators. Situational problem-solving strategies are used to enable patients to cope with challenging social settings. Group classes include approximately five to eight patients. The various teaching methods include didactic methods, mutual goal setting, situational problem solving, cognitive reframing, interactive sensory-stimulating and role-playing methods."

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

3. Given the amount of work and expense of collecting data from this many patients, why was just one question asked? It seems like a missed opportunity to learn what patients perceive they want and need, which would potentially decrease attrition rates. Please clarify.

In hindsight of completing the project, we agree with the reviewer’s comment. At the time of designing the study, we were cautious not to overwhelm patients with questions, in order to maximize our response rate. Therefore, we only used one open-ended question. This proved to be very effective. Given the lag time between actual participation of the program and our telephone survey, we were also concerned with recall bias as stated in our limitation section. A short explanation of this has been incorporated into the manuscript (see pg. 4, end of 2nd paragraph).

Discretionary Revisions (which the author can choose to ignore)

4. The issue of being embarrassed to return is a clue that perhaps the education is perceived as judgmental, rather than designed to help patients solve problems. Please relate to how the education is provided, as noted above.

How education is provided has already been addressed in a previous question. We addressed the reviewer’s comment by restructuring a bit of our text and adding the text below in the paragraph regarding embarrassment (see pg. 13, 1st paragraph).

“Educators need to take a more patient-centre approach to counseling and care, to ensure that they are non-judgmental, actively listening to patients and empowering them to make their own decisions”.

Reviewer's report # 3:

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. Page 7, 2nd paragraph: The authors speculate that "employment status is an intermediary variable, in that having English as one’s primary language or an education level of grade nine or higher may enable one to get employment, but working full or part-time is a barrier to ongoing use of services." One way to analyze this hypothesis is to include interaction terms for employment and education and for employment and primary language in the multivariable regression analysis.

We understand the reviewer’s comment, but disagree with the recommendation. First of all, our sample size (n=267) is only sufficient to fit a multivariable model with a maximum of 12 parameters based on a widely used rule of thumb of approximately 10 events per parameter in order to obtain reliable estimates and a stable logistic regression model (as stated in the analyses section). Therefore, it is not recommended to add two interactions terms (education * primary language; employment * primary language), two extra parameters, in our current model given our sample size. Second, primary language and employment consist of more than two categorical levels (each consisting of three categorical levels) and by plotting the interaction variables (recommended to better understand the direction of the interaction) is usually complex to interpret with more than two categorical levels per variable. Overall, for the purpose of reliable estimates and a stable model that is fairly parsimonious, we do not recommend introducing two interactions terms. However, our approach in identifying employment status as an intermediary variable is statistically sound and was recommended by our statistician Dr. George Tomlinson.