



Ohio Mental Health Consumer Outcomes System

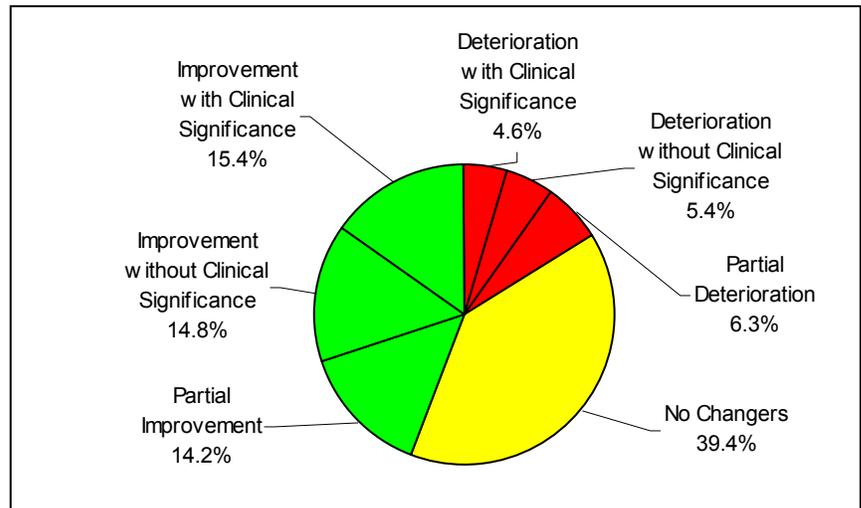
Report 18: *Benchmarks for Reliable Change and Clinical Significance on the Adult Consumer Form – Symptom Distress, Empowerment, and Quality of Life Scales*

The purpose of this report is to provide benchmarks for improvement and Clinical Significance in comparing treatment outcomes between two time points for the Symptom Distress, Empowerment, and Quality of Life subscales of the Adult Consumer Form¹. Using the concepts of Reliable Change and Clinical Significance, we developed seven categories in assessing changes in Symptom Distress over time. For the Empowerment and Quality of Life subscales, we use five categories of improvement instead. In this report, we present the distributions of improvement in the three subscales over three pairwise comparisons: 1) Initial and 6-month assessments, 2) Initial and 1-year assessments, and 3) Initial and Termination assessments.

Benchmarks are presented overall, and by age, race, and gender. Additionally, benchmarks are presented by intake Symptom Distress score, county size, primary diagnostic group, marital status, educational level, employment status, as well as two items - “Are you in treatment because you want to be?” and “How often does your physical condition interfere with your day-to-day functioning?”

SUMMARY

- For Symptom Distress, about 15% of adult consumers with completed Outcomes measures achieved a Reliable Change with Clinical Significance (moved from the clinical to the non-clinical range) at 6 months, 15% at 1 year, and 20% at termination. When the other improvement groups are added, a total of about 45% show some improvement at 6 months, 45% at 1 year, and 42% at termination. As an example, the pie chart to the right shows the results for the Symptom Distress from Initial to 6 months for 26,103 adult consumers. The improvement categories are on the left side, no change is at the lower right, and deterioration categories are at the upper right.



- For Empowerment, about 12% of adult consumers with completed measures achieved an improvement with Reliable Change at 6 months, 13% at 1 year, and 13% at termination. When the other improvement groups are added, a total of about 32% show some improvement at 6 months, 33% at 1 year, and 32% at termination.
- Around 18% of adult consumers with completed measures showed improvement with Reliable Change for their Quality of Life at 6 months, 20% at 1 year, and 22% at termination. When the partial improvement groups are added, a total of about 38% have improved at 6 months, 39% at 1 year, and 40% at termination.
- Results from multivariate analyses showed all demographic factors and covariates involved have contributed to the analyses at some points. The intake Symptom Distress level is the most significant factor in explaining the variance in the changes in Symptom Distress, Empowerment, and Quality of Life respectively.

¹ According to the recommendation from the Outcomes System Quality Improvement Group (OSQIG), beginning July 1, 2007, the Ohio Consumer Outcomes System no longer used Adult Consumer Form B. All adult consumers should complete the Adult Consumer Form (formerly known as Adult Consumer Form A) at scheduled intervals.

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What are Reliable Change and Clinical Significance?

Various research efforts have defined what constitutes improvement in psychotherapy and most of these researchers focused on the concept of *Reliable and Clinically Significant Change* (some examples: Jacobson & Truax, 1991; Lunnen & Ogles, 1998; McGlinchey, Atkins, & Jacobson, 2002). The broad concept of Reliable and Clinically Significant Change² can be addressed in two parts:

Reliable Change - Is the change of sufficient magnitude for clinicians to be confident that the change is beyond that which could be attributed to measurement error? An assessment of Reliable Change is a valuable benchmark indicating the progress in treatment. *Reliable Change* (RC) is based upon the reliability or consistency of the measurement instrument. A reliable change is usually assessed as the difference between pretest and posttest scores against a certain critical level. When the difference between two time points is above the critical level, the difference is not likely to be an artifact of measurement error.

Clinical Significance – How does the end state of the client compare with the scores observed in socially and clinically meaningful comparison groups? In this report, we adopted *Clinical Significance* as a return to non-clinical functioning from a clinical population functioning level (Jacobson & Truax, 1991), using the clinical cutoffs for the Ohio Scales developed by Ben Ogles and associates (Ogles, Melendez, Davis, & Lunnen, 1999) as the criteria.

When both Reliable Change and Clinical Significance conditions are met, the improvement is classified as Reliable and Clinically Significant Change. The Ohio Mental Health Consumer Outcomes System Report 12 includes more information about these concepts and the methods used to compute the Reliable Change and Clinical Significance threshold scores for the measures in the Ohio Consumer Outcomes System (<http://www.mh.state.oh.us/oper/outcomes/reports/rpt.quarterly.12.pdf>). The Ohio Mental Health Consumer Outcomes System Report 16 discusses the reliable and clinically significant changes in Problem Severity and Functioning of the Ohio Scales for Youth population (<http://www.mh.state.oh.us/oper/outcomes/reports/rpt.quarterly.16.pdf>).

Seven categories of changes in this report

In this report, we used the same seven categories of changes used in Outcomes System Quarterly Report #16 to present the changes in Symptom Distress over various time periods. Due to the lack of clinical cutting scores for the Empowerment and Quality of Life scales, only five categories of change are used to present changes for these two scales.

I. Seven categories of changes (for Symptom Distress)

Using the above concepts of Reliable Change and Clinical Significance, we developed seven categories of change to sum up changes between two time points. These are: Improvement with Clinical Significance, Improvement without Clinical Significance, Partial Improvement, No Change, Partial Deterioration, Deterioration without Clinical Significance, and Deterioration with Clinical Significance.

Improvement with Clinical Significance

Improvement with Clinical Significance is improvement between the two assessments greater than or equal to the Reliable Change amount and at the same time showing an initial score in the clinical range and a follow-up score in the non-clinical range. For example, line A on Figure 1 below, shows an Improvement of 13 points on the Symptom Distress scale, while moving from the clinical range across the cutting score (which is 30),³ to the non-clinical range

² Jacobson & Truax (1991) & Evans, Margison, & Barkham (1998) provided precise summaries of the calculation with illustrated examples in explaining the two concepts.

³ The clinical cutting score for the Symptom Distress scale extrapolated from an earlier research study which used various versions of the Symptom Checklist. In their study, a clinical cutoff of 1.75 (from a range of 1 to 4) was developed independently by a panel of clinicians. (Strand, Dalgard, Tambs, & Rognerud, (2003)

at follow-up. Simply put, a person experiences a real improvement and moves from the clinical to the non-clinical range.

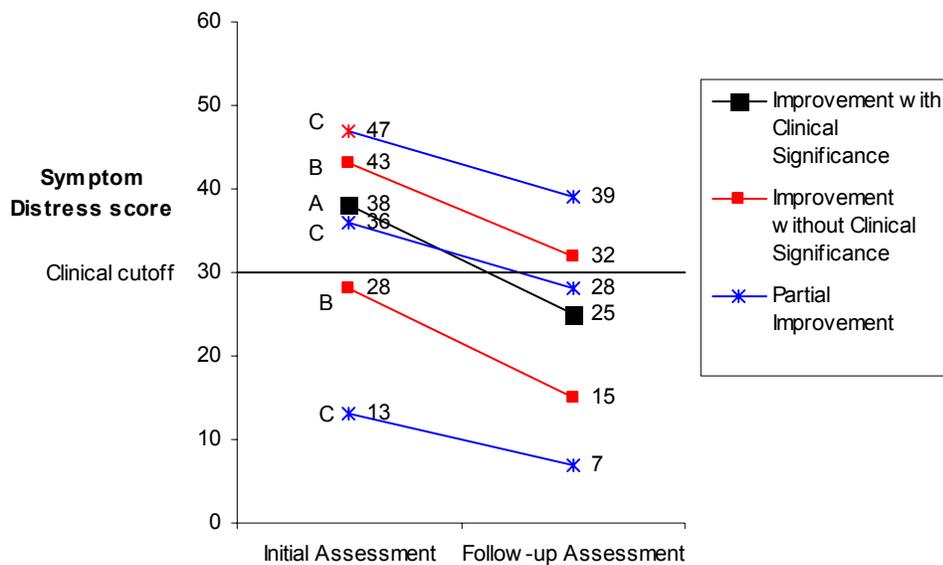
Improvement without Clinical Significance

Improvement without Clinical Significance is improvement greater than or equal to the Reliable Change amount (e.g., 11 points on the Symptom Distress scale), but without a change from the clinical to the non-clinical range (Clinical Significance). People in this category may have started from anywhere on the range of possible, even in the non-clinical range, but the Reliable Change they experienced did not move them from the clinical range across the clinical cutting score to the non-clinical range. The lines marked B in Figure 1 below show examples of this category.

Partial Improvement

Partial Improvement is improvement between half of the Reliable Change amount (e.g., 6 points on the Symptom Distress scale) and the full Reliable Change amount (i.e., 11 for Symptom Distress). After producing Consumer Outcomes Quarterly Report #12 (see <http://www.mh.state.oh.us/oper/outcomes/reports/rpt.quarterly.12.pdf>) on Reliable Change and Clinical Significance, we received some comments indicating that the Clinical Significance threshold was too high and that far less change was important and real. To reflect those comments and recognize where some change has occurred, we have added the partial categories. The lines marked C in Figure 1 below show examples of this category.

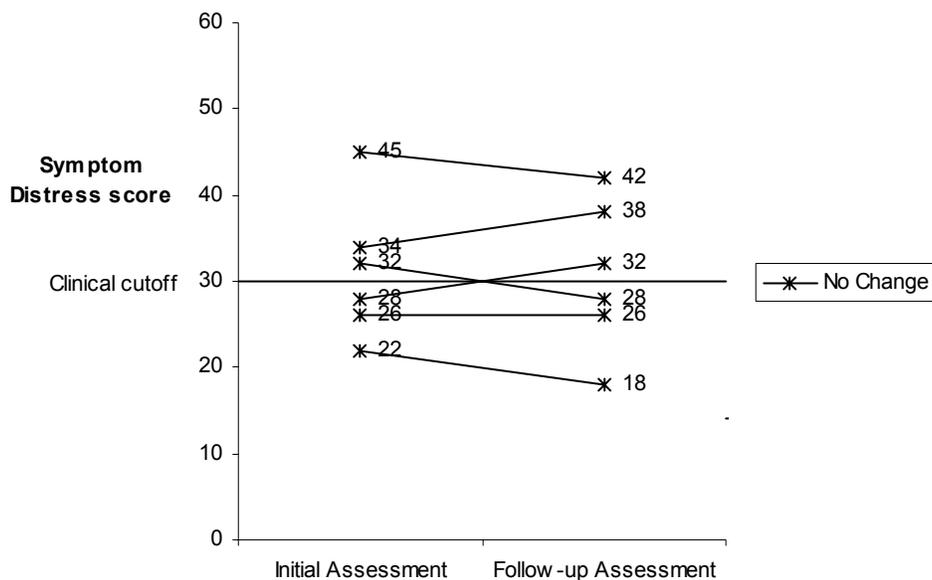
Figure 1. Illustration for Improvement Categories



No Change

No Change includes any change, positive or negative, of less than half of the Reliable Change threshold. Figure 2 below illustrates some possible scenarios of this group. All lines in Figure 2 below illustrate improvement or deterioration of less than half of the Reliable Change amount (e.g., less than 6 on the Symptom Distress scale). Whether they are in the clinical range or the non-clinical range, or whether there are any changes from clinical group to non-clinical or vice versa will not affect the classification.

Figure 2. Illustration for No Change Categories



Partial Deterioration

Similar to Partial Improvement, Partial Deterioration is deterioration of more than half the Reliable Change amount (e.g., 6 on the Symptom Distress scale) but less than a full Reliable Change amount (e.g., 11 on the Symptom Distress scale) in the deterioration direction. The lines labeled D in Figure 3 show Partial Deterioration, with deterioration of 7, 6, and 6 respectively. Even though one line has crossed the clinical cutoff point between the two assessments, the magnitude of the change does not achieve the Reliable Change criterion and so it is only considered as Partial Deterioration.

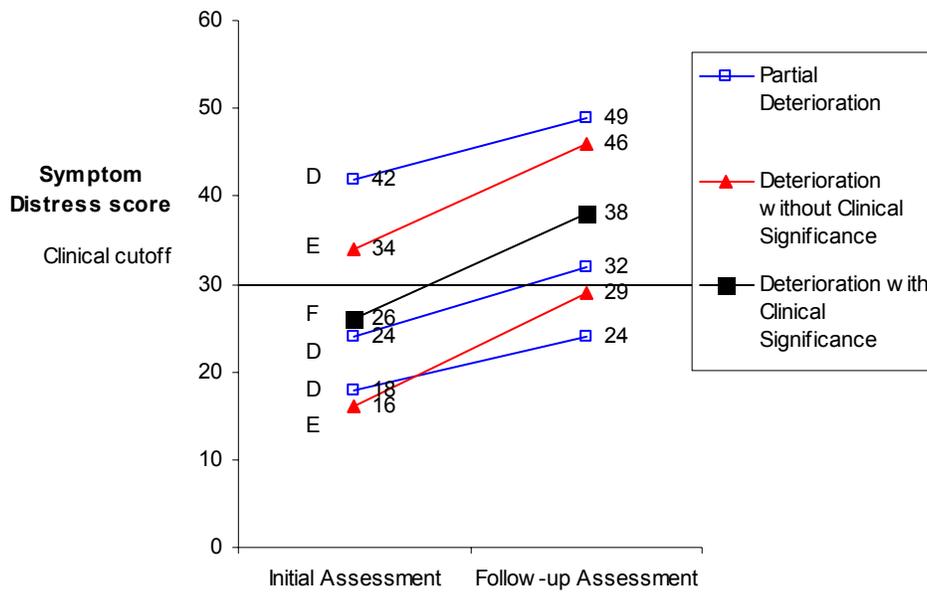
Deterioration without Clinical Significance

Deterioration without Clinical Significance is deterioration greater than or equal to the Reliable Change amount (e.g. an increase of 11 on the Symptom Distress scale), without a change from the non-clinical range to the clinical range. The lines labeled E in Figure 3 below illustrate some examples of this category.

Deterioration with Clinical Significance

Deterioration with Clinical Significance is deterioration between the two assessments greater than or equal to the Reliable Change amount and at the same time showing an initial score in the non-clinical range and a follow-up score in the clinical range. The line labeled F in Figure 3 below shows deterioration with an increase of 12 in the Symptom Distress scale score, while moving from the non-clinical range across the clinical cutting score to the clinical range.

Figure 3. Illustration for Deterioration Categories



II. Five categories of changes (for Empowerment and Quality of Life)

As no clinical cutting scores have been determined for the Empowerment and the Quality of Life scales, we cannot apply the concept of Clinical Significance to these constructs. In describing the changes in these two scales, we use five categories instead of seven categories discussed above. The five categories are: Improvement with Reliable Change, Partial Improvement, No Change, Partial Deterioration, and Deterioration with Reliable Change.

Improvement with Reliable Change

Improvement with Reliable Change is improvement greater than or equal to the Reliable Change amount (i.e., 0.4 for Empowerment, or 0.8 for Quality of Life). For example, an Improvement with Reliable Change on the Empowerment scale means there is an increase of 0.4 or more points on the scale scores between the two assessments. This category is mathematically equivalent to the combination of the Improvement with Clinical Significance and Improvement without Clinical Significance categories from the seven-category classification discussed above.

Partial Improvement

Partial Improvement is improvement of equal to or greater than half of the Reliable Change amount (i.e., 0.2 for Empowerment or 0.4 for Quality of Life) and less than the Reliable Change amount (i.e., 0.4 for Empowerment and 0.8 for Quality of Life).

No Change

No Change includes any change, positive or negative, of less than half of the Reliable Change threshold (i.e., less than 0.2 in Empowerment or 0.4 in Quality of Life).

Partial Deterioration

Analogous to Partial Improvement, Partial Deterioration includes cases with deterioration equal to or greater than half the Reliable Change amount (i.e., 0.2 in Empowerment or 0.4 in Quality of Life) but less than the full Reliable Change amount (i.e., 0.4 in Empowerment or 0.8 in Quality of Life).

Deterioration with Reliable Change

Deterioration with Reliable Change is deterioration between the two assessments greater than or equal to the Reliable Change amount (i.e., 0.4 in Empowerment or 0.8 in Quality of Life). It is equivalent to the combination of the last two categories from the seven-category classification.

For those who would like to compare local results to the benchmarks reported here, but only have three categories (Reliable Improvement, No Change, Reliable Deterioration), you can add together the percentages of the Improvement with Clinical Significance and Improvement without Clinical Significance categories to come up with the equivalent of the Reliable Improvement category. Similarly, you can add together the percentages of the Deterioration with Clinical Significance and Deterioration without Clinical Significance to come up with the equivalent of the Reliable Deterioration category. Finally, the No Change category can be computed by adding the percentages of the Partial Improvement, No Change, and Partial Deterioration categories. See the Figure 4 below for how the three categorization systems compare.

Figure 4: Comparison of three categorization systems using Reliable Change and Clinical Significance.

Seven Categories	Improvement with Clinical Significance	Improvement w/o Clinical Significance	Partial Improvement	No Change	Partial Deterioration	Deterioration w/o Clinical Significance	Deterioration with Clinical Significance
Five Categories	Improvement with Reliable Change		Partial Improvement	No Change	Partial Deterioration	Deterioration with Reliable Change	
Three Categories	Reliable Improvement		No Change			Reliable Deterioration	

The present report used the January 7, 2008 Production Data in the Ohio Mental Health Consumer Outcomes System. In the following analyses, three pair-wise matching datasets (Initial to 6-month assessments, Initial to 1-year assessments, and Initial to Termination assessments)⁴ were constructed from all unique individuals in the system with valid Outcomes measures (i.e., Symptom Distress, Empowerment, or Quality of Life) in both the Initial assessment and a follow-up assessment.

Multivariate Analysis: Exploring factors that may predict changes

In assessing the contribution of various factors and covariates to changes in Outcomes, we used the magnitude of changes between the Initial assessment and the follow-up assessment in Symptom Distress, Empowerment, and Quality of Life of the Adult Consumer Form as the dependent variable in a series of multivariate analyses. The following demographic factors and covariates were included: gender, age group, race, primary diagnostic group, intake Symptom Distress score, county size, marital status, education level, employment status, as well as two items - “Are you in treatment because you want to be?” and “How often does your physical condition interfere with your day-to-day functioning?”

Due to the large number of factors and covariates and the limitation of the software, only the main effects were entered into the multivariate analyses. Results showed that all factors and covariates contributed to the improvement of the three Outcomes in some comparison. Among these factors and covariates, the intake Symptom Distress level is the most significant contributor in explaining the changes in the Outcomes. For details on this, please refer to Appendix A: ANOVA Results Table.

⁴ The Initial assessment period includes all assessments administered within 44 days from the date of admission to service. The 6-month period includes all assessments administered within 136 to 227 days from the date of admission. The one-year period includes all assessments administered between 320 days to 410 days from the date of admission to service. And the termination assessment includes valid Outcomes records marked as termination administration. If more than one assessment was completed within a time period, the earlier valid assessment would be used for that time period.

Discussion

In reporting the changes for Symptom Distress in this report, similar to the Consumer Outcomes System Quarterly Report 16, we have chosen a narrow definition of clinically significant change, where the client moves from one distribution to another with a magnitude of change above the threshold of the reliable change index (Jacobson, Follette, & Revenstorf, 1984, 1986). Thus, in this report, those clients who achieved a reliable improvement but started in the non-clinical range (and therefore did not cross the cutoff point) are classified in the "Improvement without Clinical Significance" category rather than the "Improvement with Clinical Significance" category. Our decision preserves clinical significance as a movement across the clinical cutting score, rather than a classification based on the status of being in the non-clinical range at the end of treatment.

It is intuitive that there should be a cutting point between the clinical and non-clinical range on the Symptom Distress scale; after all, symptom reduction is one of the primary expectations of service. Research has demonstrated that treatment impacts quality of life, and can impact empowerment. However, we could find no research literature upon which to base the establishment of a clinical cutting score for the latter two scales. Ideally, data on these two scales from a non-clinical sample will be obtained, and will provide a basis for establishing a cutting score. Due to the lack of clinical cutting scores for Empowerment and Quality of Life, we can only use Reliable Change in describing the improvement in these two outcomes.

This report can be considered as a companion to the Outcomes System Quarterly Report #16. In Report #16, we have presented the changes in Outcomes associated with youth data; in this report we presented Outcomes with adult consumers. The view of change over time in these two reports complements the views in the odd-numbered reports in our Quarterly Report series (<http://www.mh.state.oh.us/oper/outcomes/reports/quarterly.html>) and available in the Outcomes Data Mart (available through: <http://www.mh.state.oh.us/oper/outcomes/data.mart.index.html>). We believe this new view of data gives the user many points of comparison for use in benchmarking aggregate data. Several points are important to make as we begin to understand these data. First, the data reported here represent a subset of all of the cases that began treatment. The majority of consumers who begin treatment do not complete follow-up administrations. Further, for those who do have a follow-up administration, not all Outcomes scales have enough data to calculate a Symptom Distress, Quality of Life or Empowerment scale score. Second, not all of the factors that may influence Outcomes change scores were included in this analysis, only those factors that are available from the Outcomes data.

This report represents baseline measures for adult consumers in the system. Further data collection enables system performance tracking and evaluation of improved treatment methods over time in a longitudinal manner. We hope further effort in implementing effective evidence-based practices and quality improvement in our service delivery can further enhance improvement in the outcomes of the people whom we serve.

Understanding the charts

For the Symptom Distress scale, each chart shows the percentage of consumers who fall into one of the seven categories described above: 1) Improvement with Clinical Significance, 2) Improvement without Clinical Significance, 3) Partial Improvement, 4) No Change, 5) Partial Deterioration, 6) Deterioration without Clinical Significance and 7) Deterioration with Clinical Significance. The percentages shown add to 100% with some differences due to rounding. Some of the charts also break the information out by various demographic variables. Several pieces of information are included with each chart. The number of cases, or N (shown in parentheses behind the title), shows the number of cases that are included in the chart; multiplying the percentage of a category times the N will give the number of people in that category. For example, the first chart includes an N of 26,103 and 15.4% in the Improvement with Clinical Significance category. Multiplying these numbers ($26,103 \times .154$) shows that about 4,020 of the 26,103 adults included experienced Improvement with Clinical Significance. A note about the average number of days between the assessments is included so the reader can see the average days elapsed between assessments. The standard deviation of the days between assessments, which can be understood as the mean distance from the average, is noted in parentheses as the S.D. The standard deviation shows that not all of the data were collected exactly on schedule.

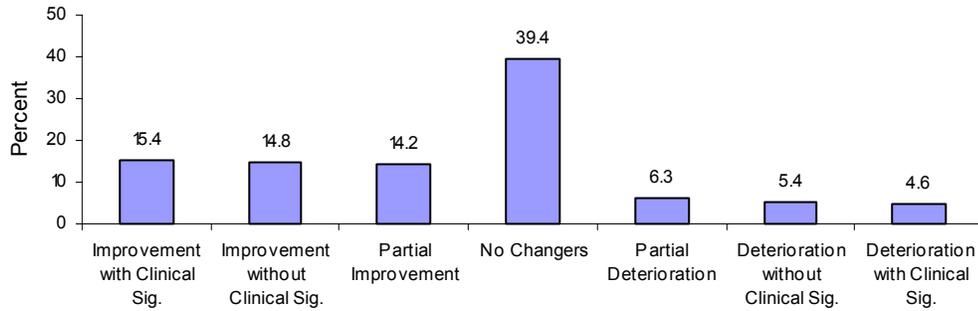
For the Empowerment and Quality of Life scales, each chart shows the percentage of consumers who fall into one of the five categories: 1) Improvement with Reliable Change, 2) Partial Improvement, 3) No Change, 4) Partial Deterioration, and 5) Deterioration with Reliable Change.

Any questions about the report can be directed to either Kwok Kwan Tam at tamk@mh.state.oh.us, 614-752-9706, or to Jim Healy, at healyj@mh.state.oh.us, 614-752-9311.

Change in Adult Consumer Form - Symptom Distress

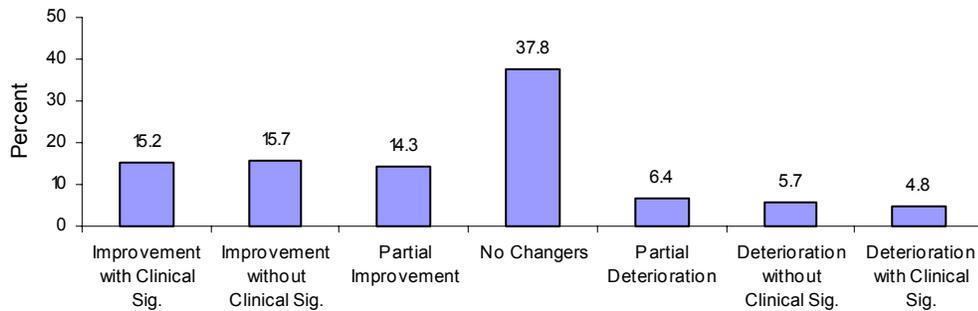
Symptom Distress—Overall Changes

Adult Consumer - Symptom Distress (Initial - 6-month) (N=26,103)



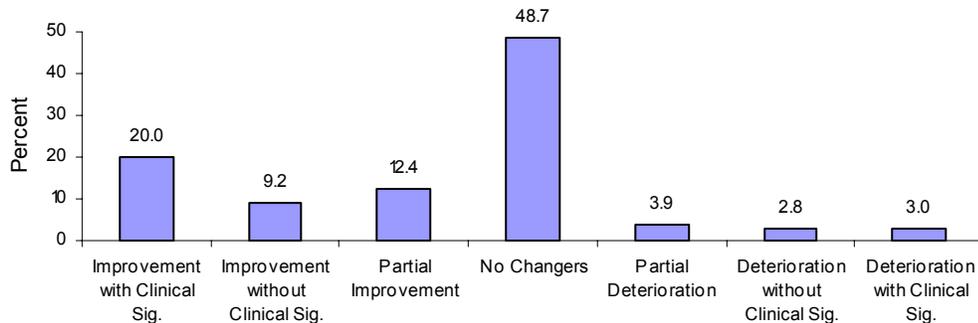
Note: Average number of days between assessments = 198 (S.D.=35)

Adult Consumer - Symptom Distress (Initial - 1-year) (N=20,891)



Note: Average number of days between assessments = 360 (S.D.=48)

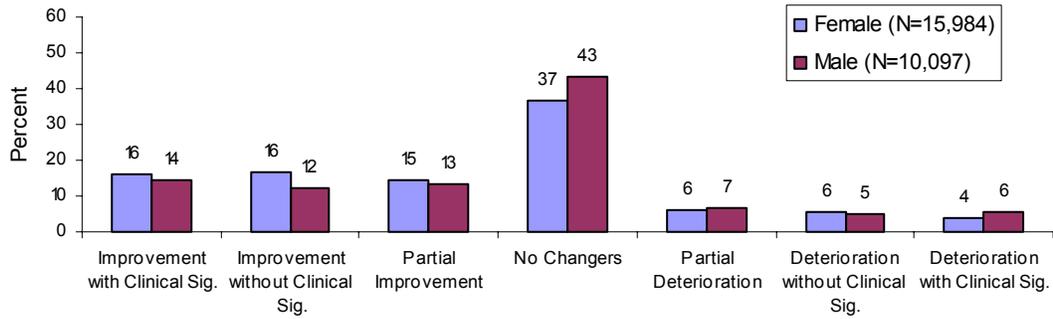
Adult Consumer - Symptom Distress (Initial - Termination) (N=9,794)



Note: Average number of days between assessments = 259 (S.D.=485)

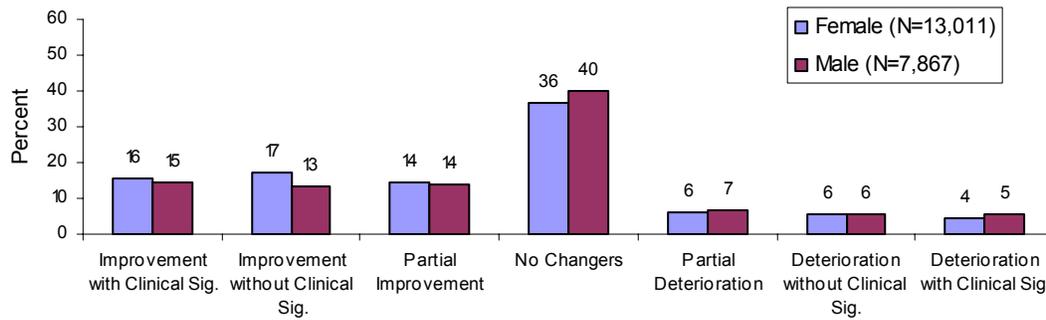
Changes in Symptom Distress by Gender

Adult Consumer - Symptom Distress (Initial - 6-month) by Gender



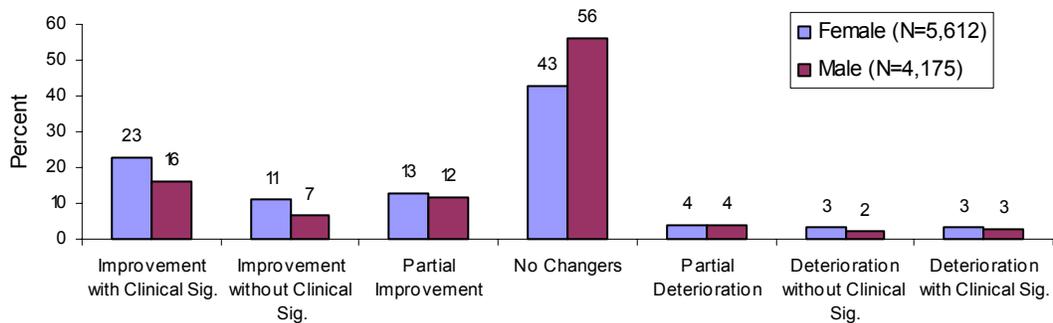
Note: Gender is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Adult Consumer - Symptom Distress (Initial - 1-year) by Gender



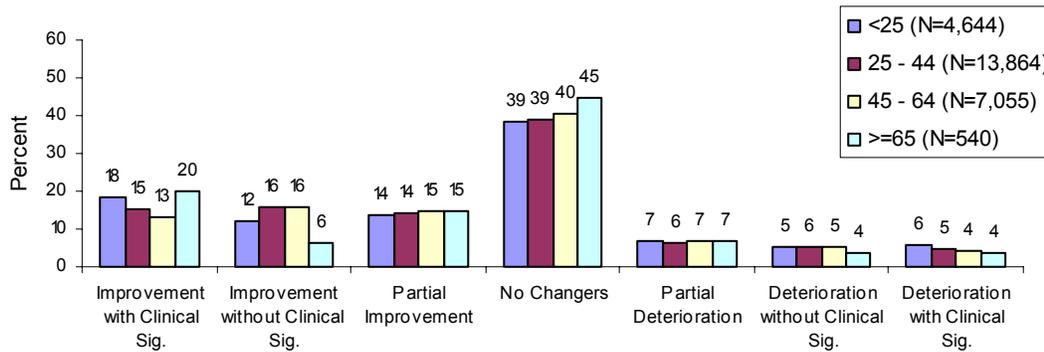
Note: Gender is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Adult Consumer - Symptom Distress (Initial - Termination) by Gender



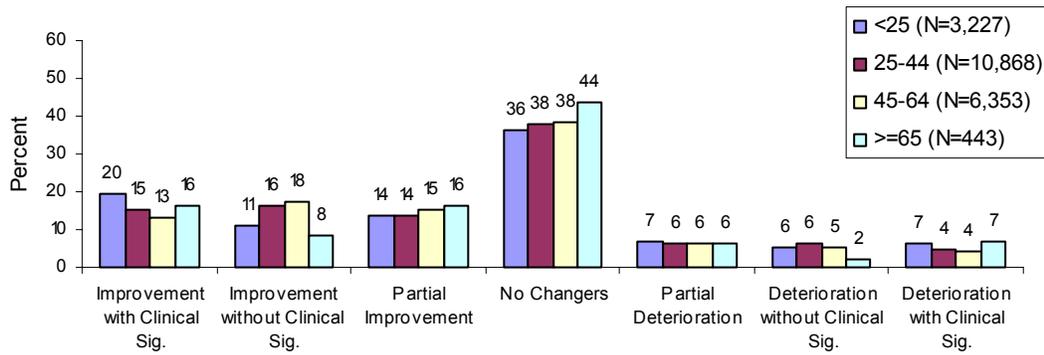
Changes in Symptom Distress by Age Group

Adult Consumer - Symptom Distress (Initial - 6-month) by Age



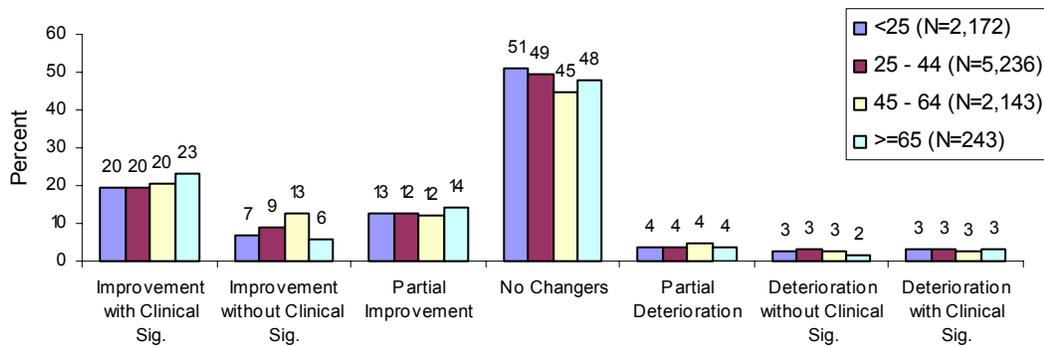
Note: Age group is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Adult Consumer - Symptom Distress (Initial - 1-year) by Age



Note: Age group is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

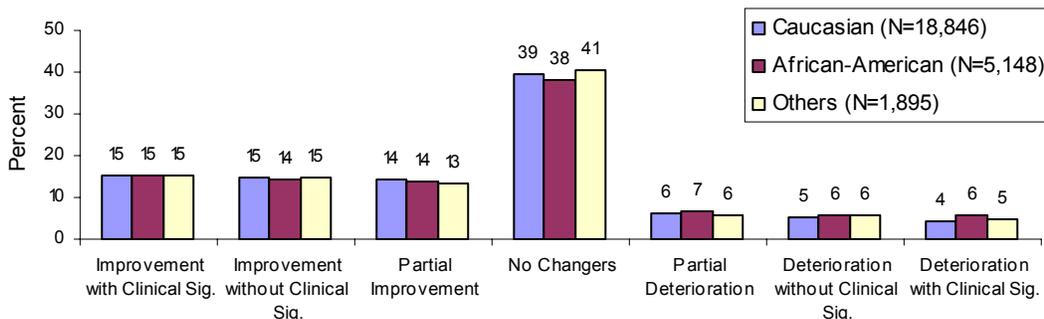
Adult Consumer - Symptom Distress (Initial - Termination) by Age



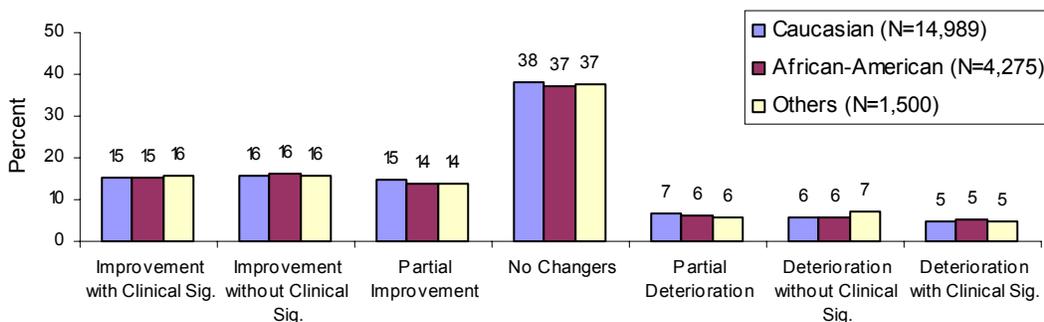
Note: Age group is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Changes in Symptom Distress by Race

Adult Consumer - Symptom Distress (Initial - 6-month) by Race

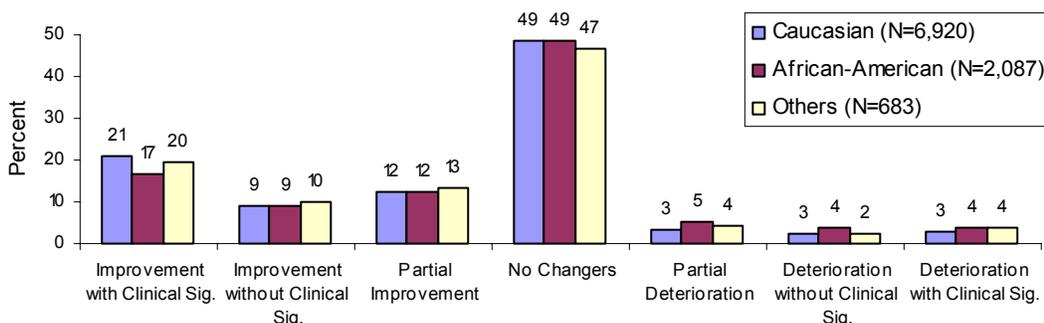


Adult Consumer - Symptom Distress (Initial - 1-year) by Race

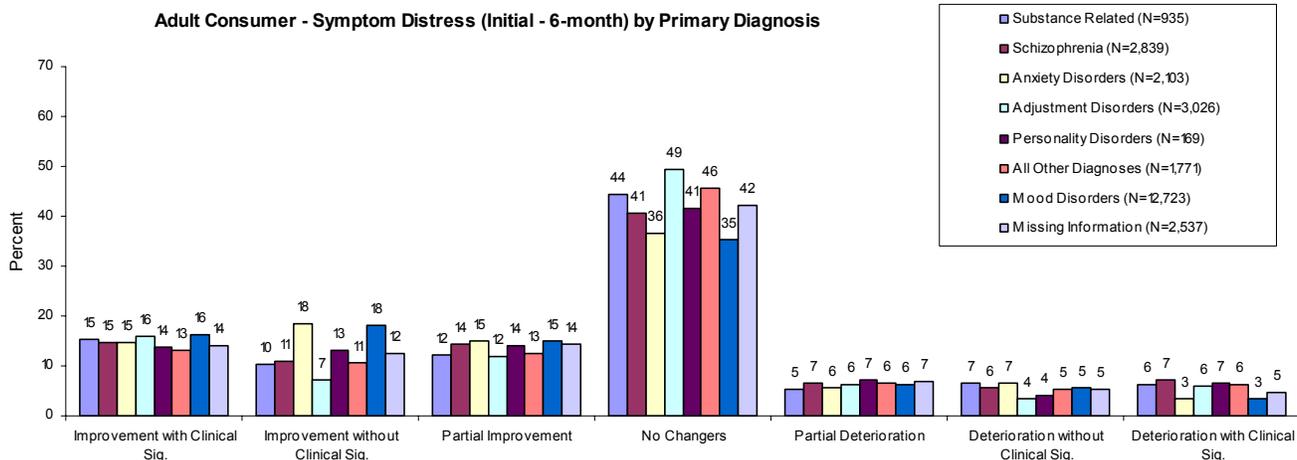


Note: Race is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

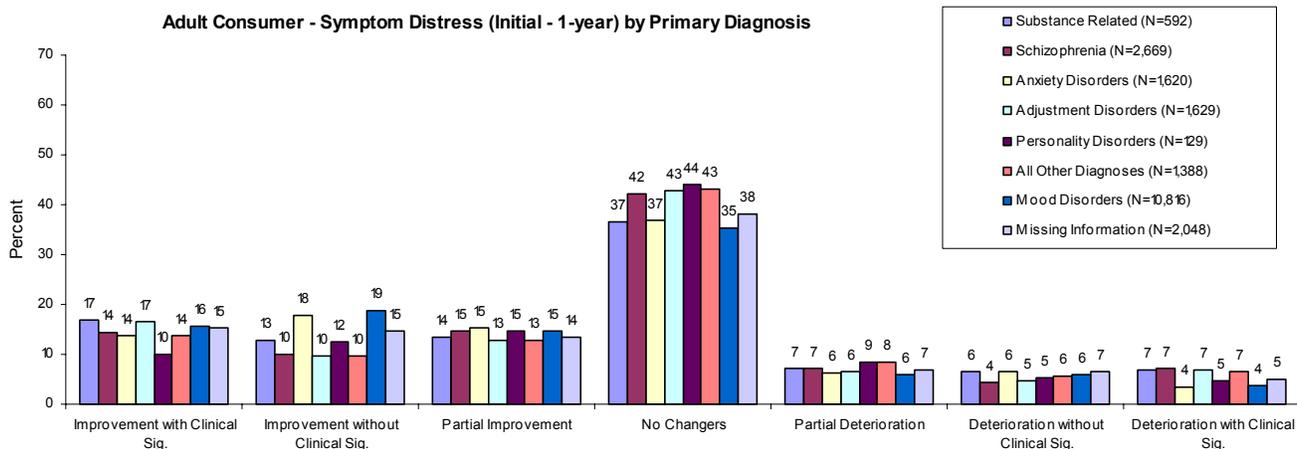
Adult Consumer - Symptom Distress (Initial - Termination) by Race



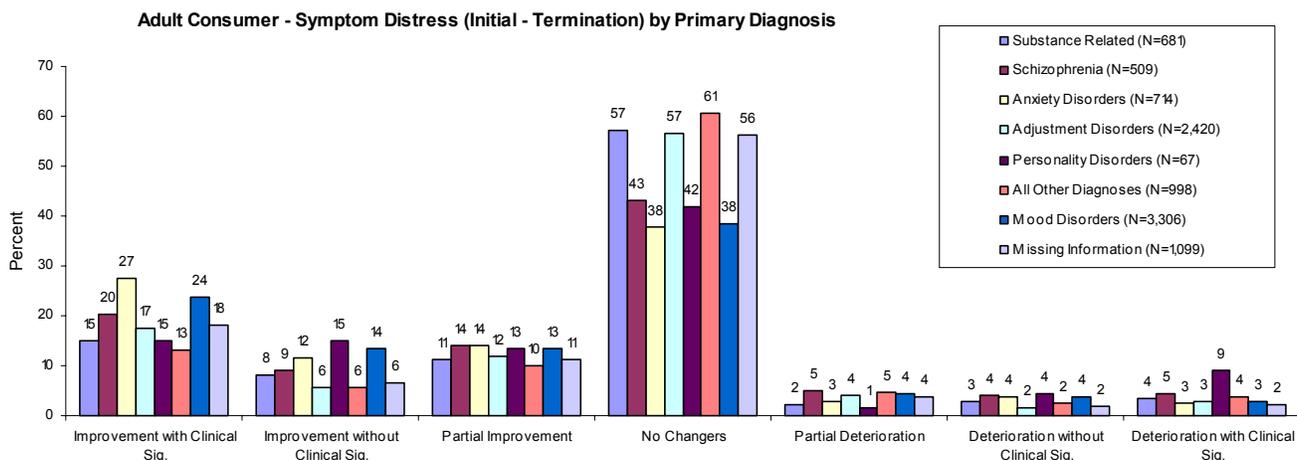
Changes in Symptom Distress by Primary Diagnosis



Note: Primary Diagnosis is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.



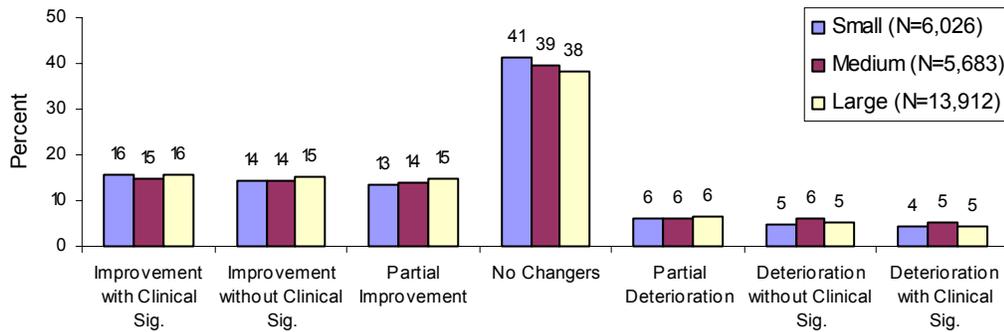
Note: Primary Diagnosis is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.



Note: Primary Diagnosis is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

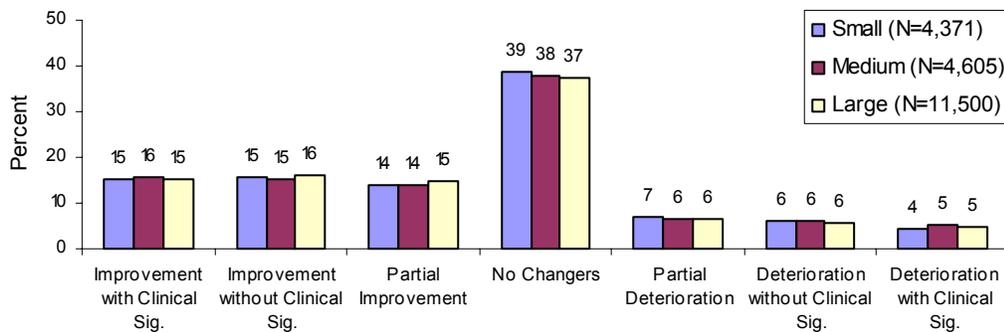
Changes in Symptom Distress by County Size⁵

Adult Consumer - Symptom Distress (Initial - 6-month) by County Size

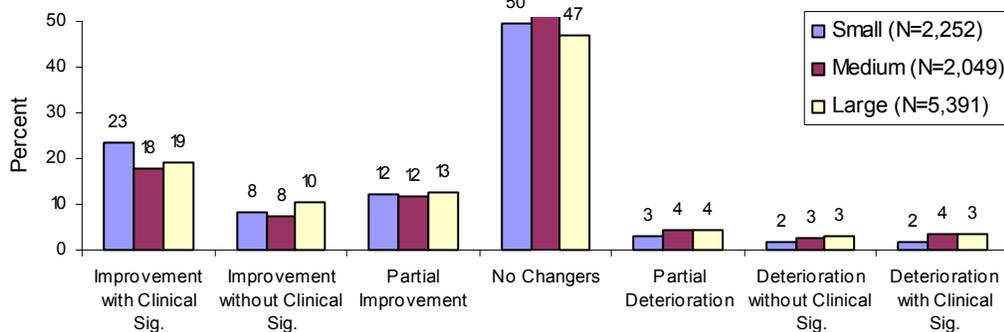


Note: County Size is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Adult Consumer - Symptom Distress (Initial - 1-year) by County Size



Adult Consumer - Symptom Distress (Initial - Termination) by County Size

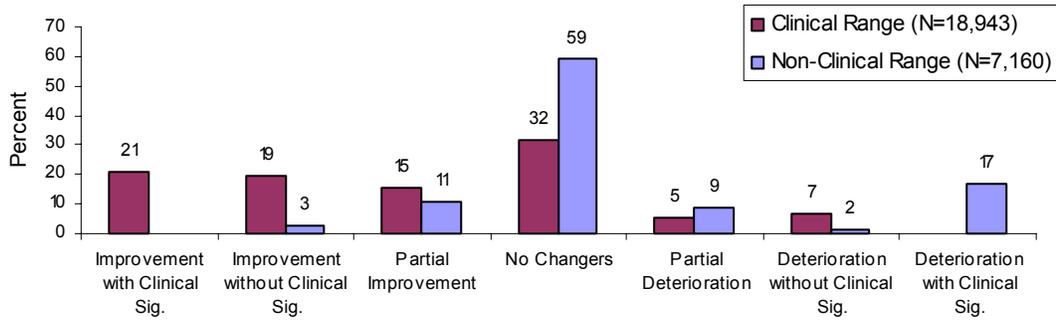


Note: County Size is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

⁵ Large counties are those with populations greater than 300,000. Medium size counties have a population between 100,000 and 300,000. Small counties have a population less than 100,000.

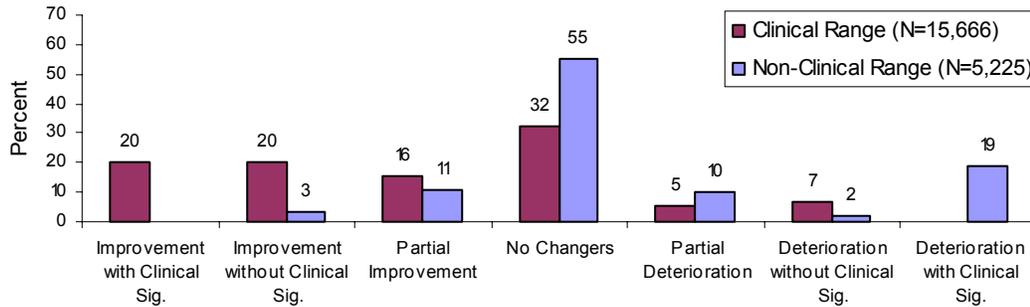
Changes in Symptom Distress by Intake Symptom Distress Level

**Adult Consumer - Symptom Distress (Initial - 6-month)
by Intake Symptom Distress Level**



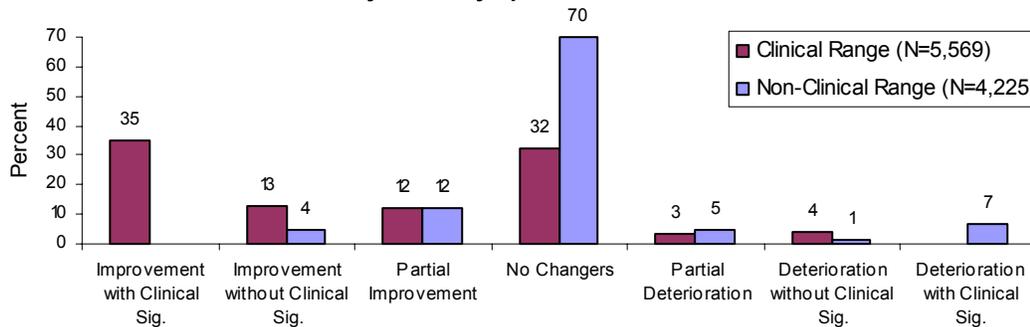
Note: Intake Symptom Distress level is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

**Adult Consumer - Symptom Distress (Initial - 1-year)
by Intake Symptom Distress Level**



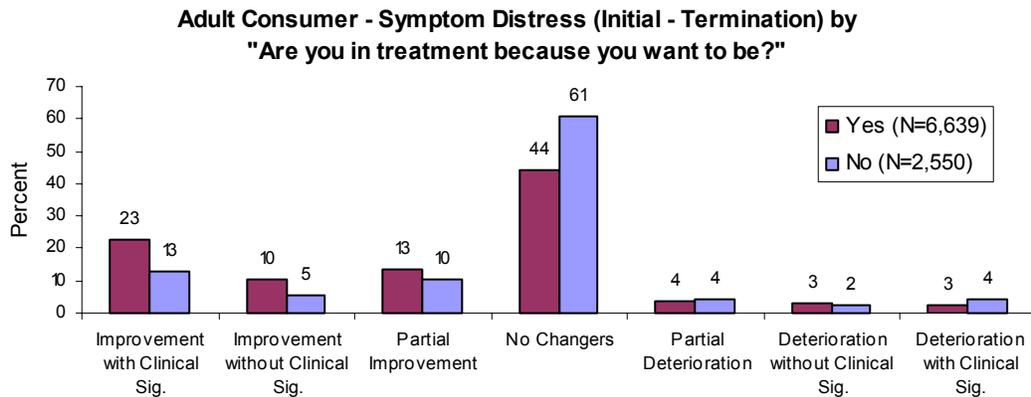
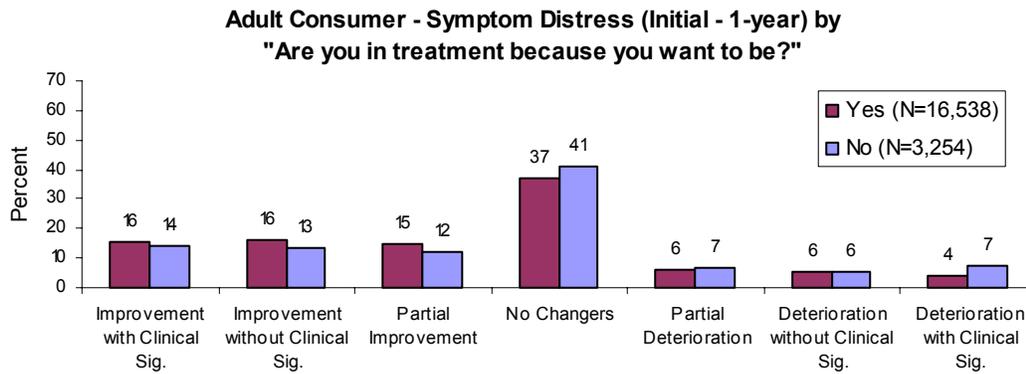
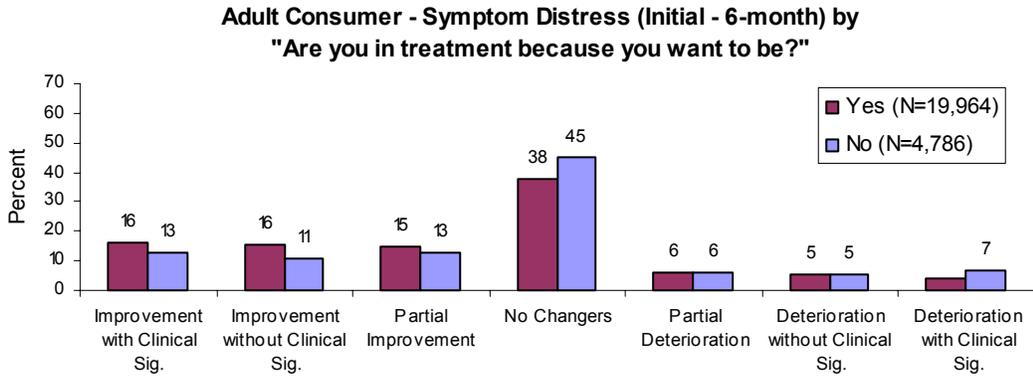
Note: Intake Symptom Distress level is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

**Adult Consumer - Symptom Distress (Initial - Termination)
by Intake Symptom Distress Level**

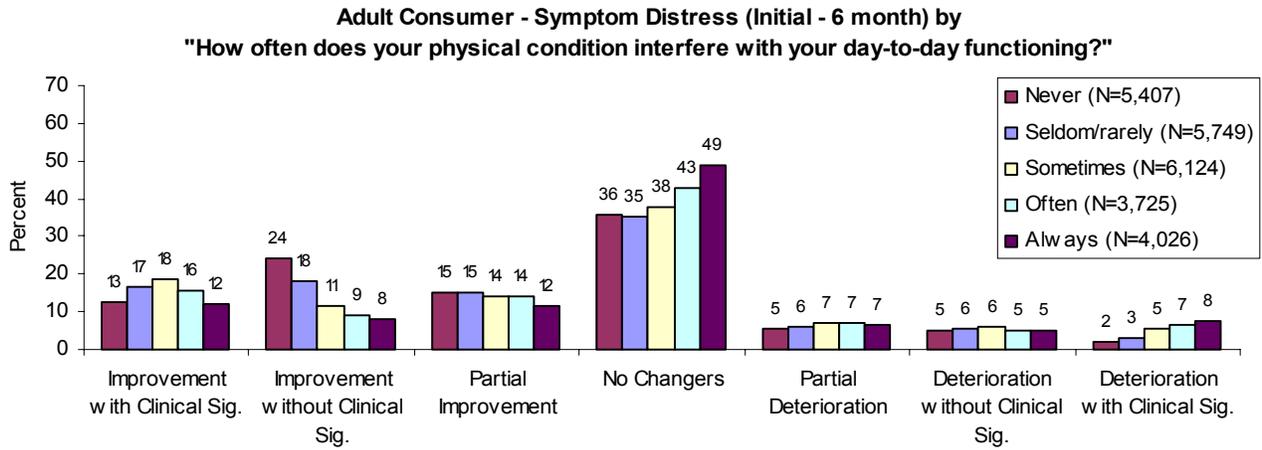


Note: Intake Symptom Distress level is a significant factor in multivariate analysis with Change in Symptom Distress as dependent variable.

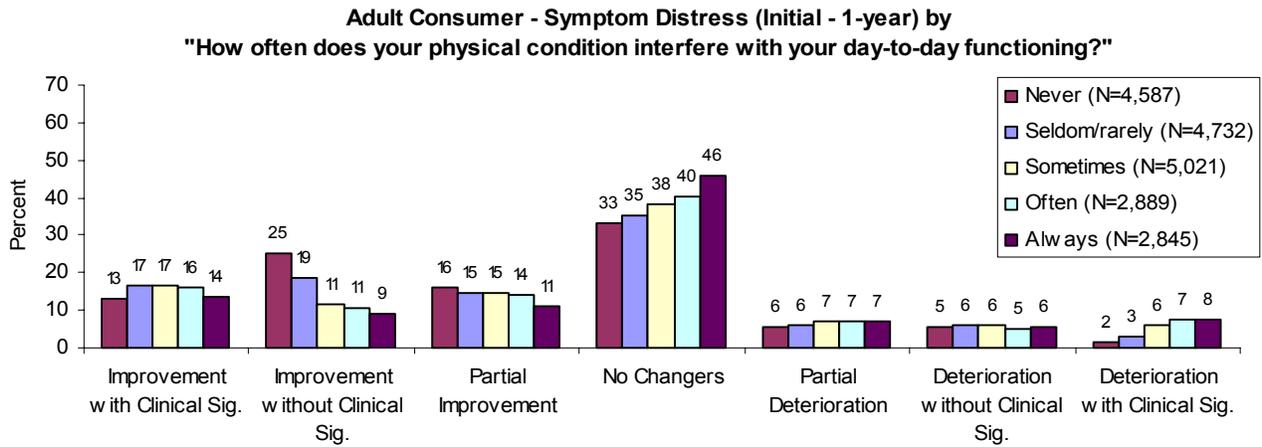
Changes in Symptom Distress by "Are you in treatment because you want to be?"



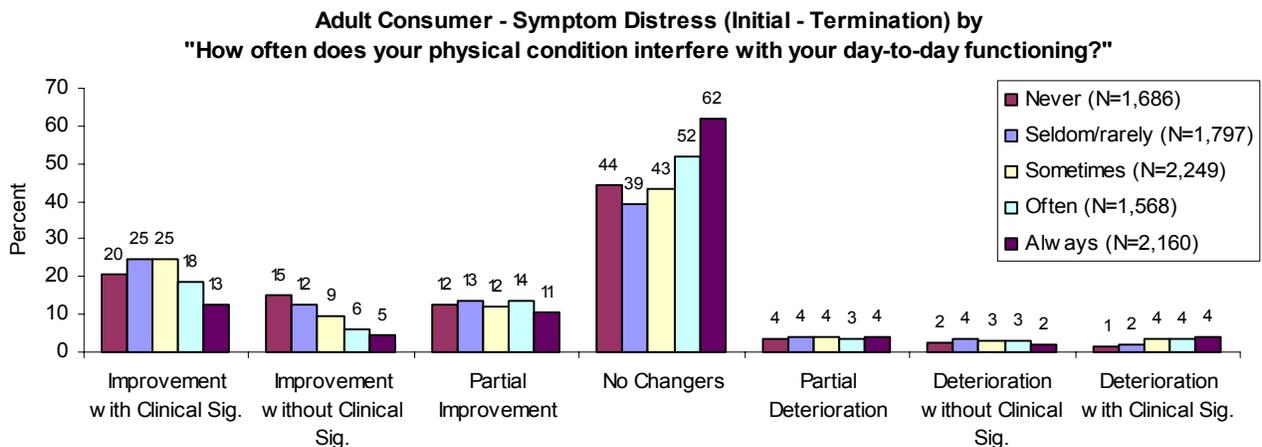
Changes in Symptom Distress by “How often does your physical condition interfere with your day-to-day functioning?”



Note: “How often does your physical condition interfere with your day-to-day functioning?” is a significant covariate in multivariate analysis with change in Symptom Distress as dependent variable.



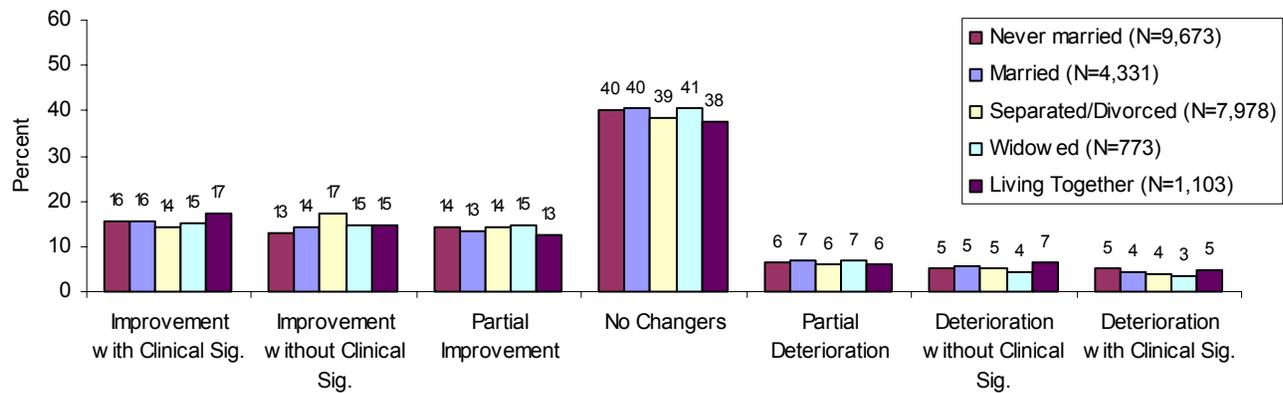
Note: “How often does your physical condition interfere with your day-to-day functioning?” is a significant covariate in multivariate analysis with change in Symptom Distress as dependent variable.



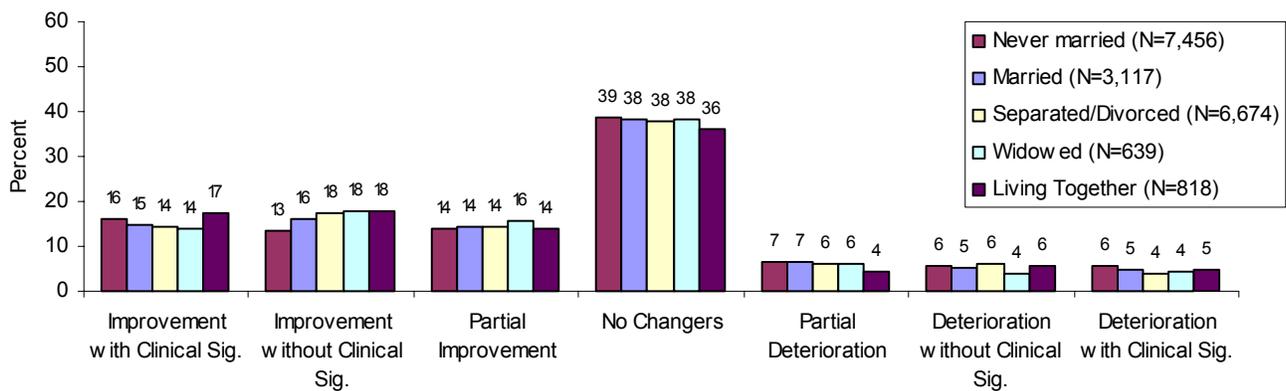
Note: “How often does your physical condition interfere with your day-to-day functioning?” is a significant covariate in multivariate analysis with change in Symptom Distress as dependent variable.

Changes in Symptom Distress by Marital Status

Adult Consumer - Symptom Distress (Initial - 6-month) by Marital Status

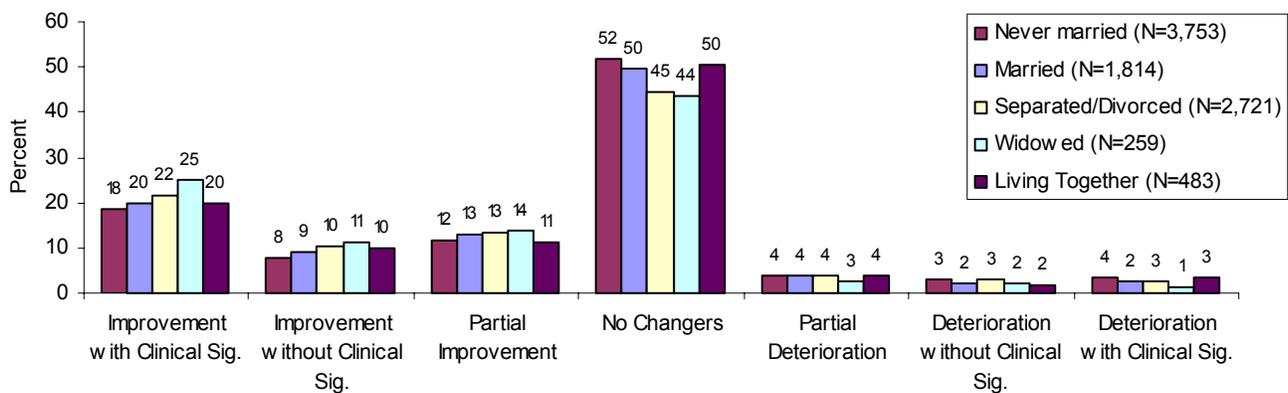


Adult Consumer - Symptom Distress (Initial - 1-year) by Marital Status



Note: Marital Status is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

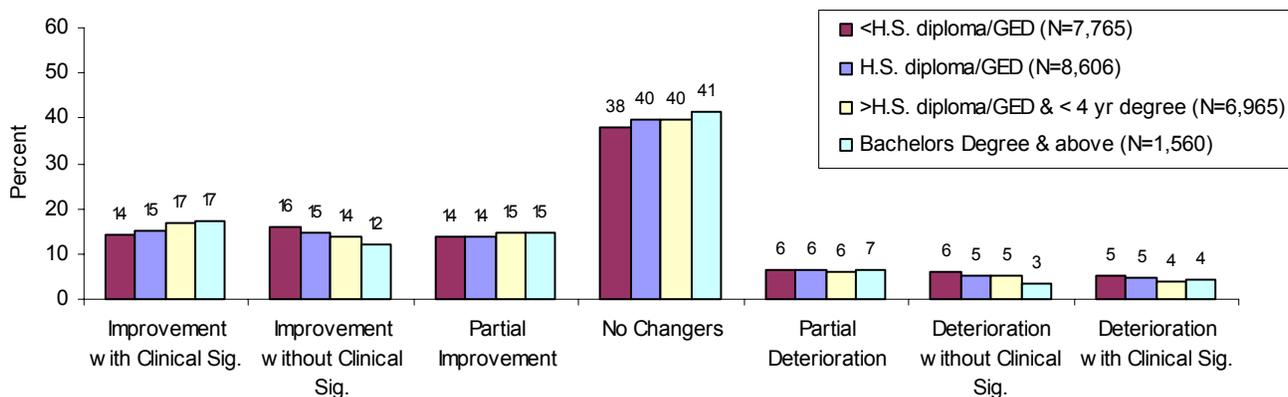
Adult Consumer - Symptom Distress (Initial - Termination) by Marital Status



Note: Marital Status is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

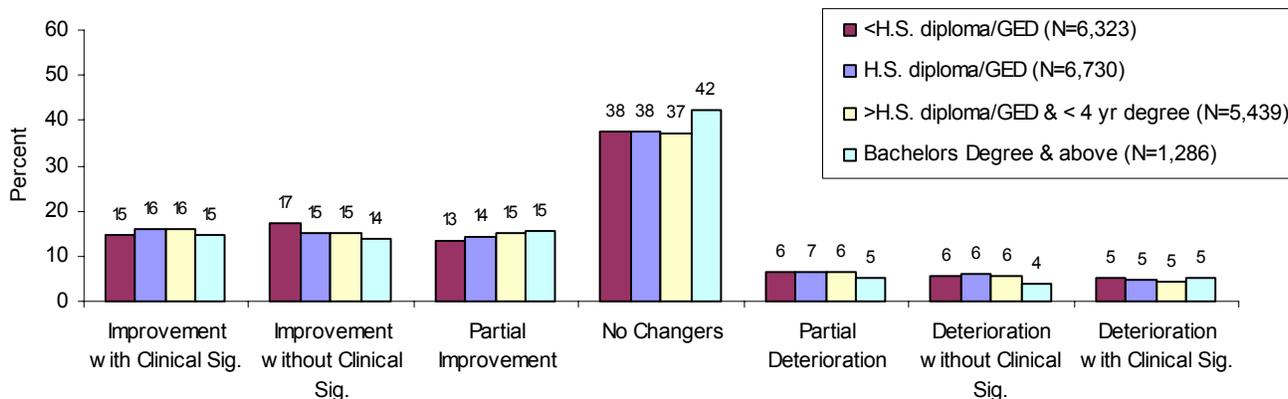
Changes in Symptom Distress by Education Level

Adult Consumer - Symptom Distress (Initial - 6-month) by Education Level



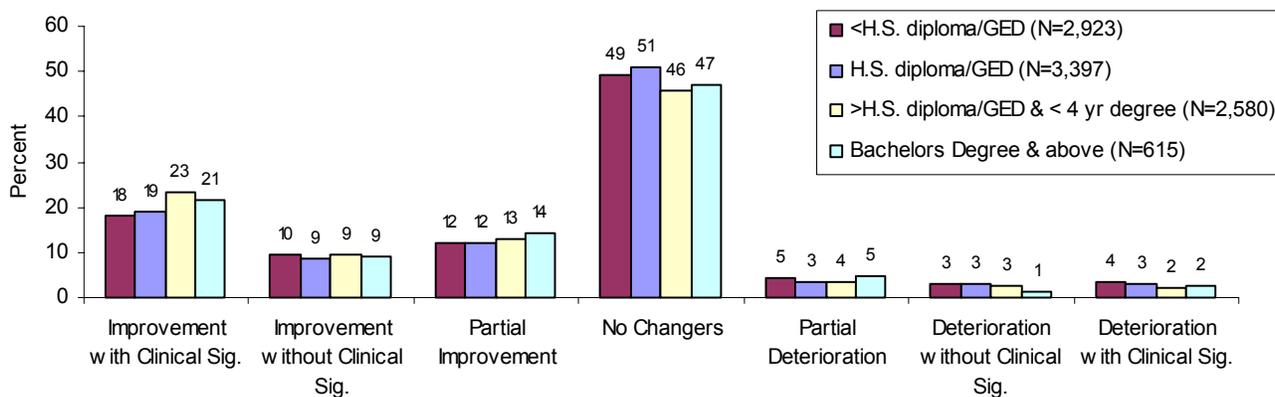
Note: Education is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Adult Consumer - Symptom Distress (Initial - 1-year) by Education Level



Note: Marital Status is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

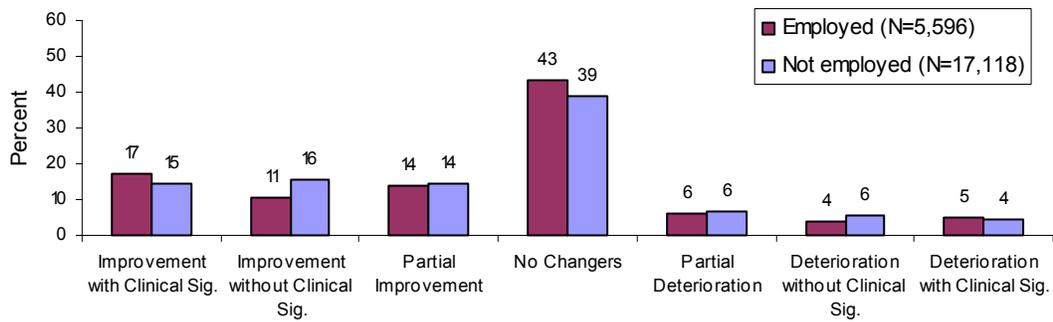
Adult Consumer - Symptom Distress (Initial - Termination) by Education Level



Note: Marital Status is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

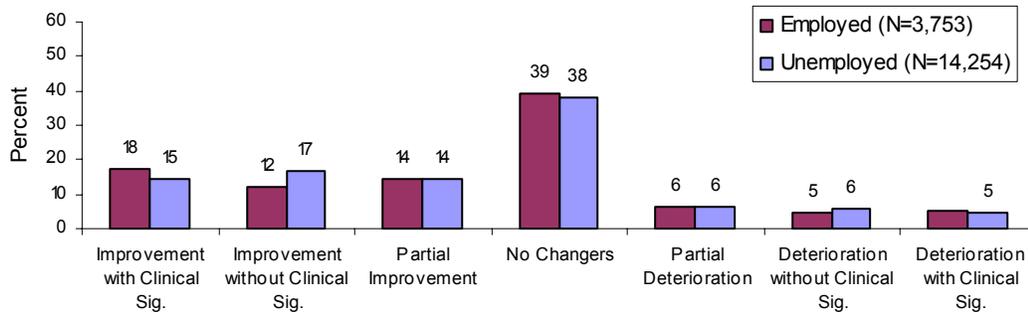
Changes in Symptom Distress by Employment Status

Adult Consumer - Symptom Distress (Initial - 6-month) by Employment Status



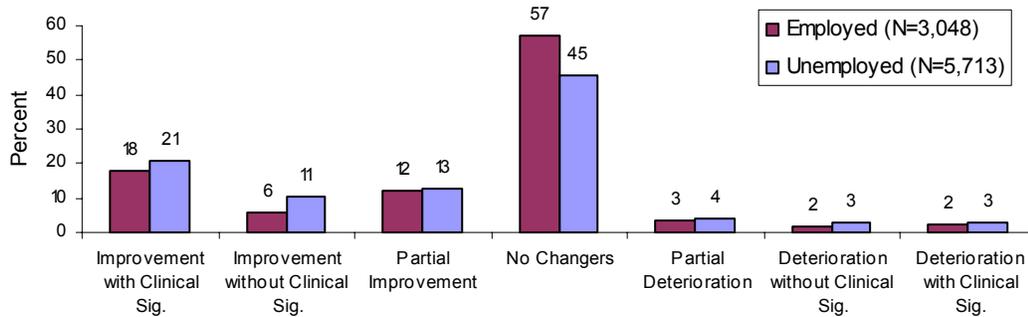
Note: Employment is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Adult Consumer - Symptom Distress (Initial - 1-year) by Employment Status



Note: Employment is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Adult Consumer - Symptom Distress (Initial-Termination) by Employment Status

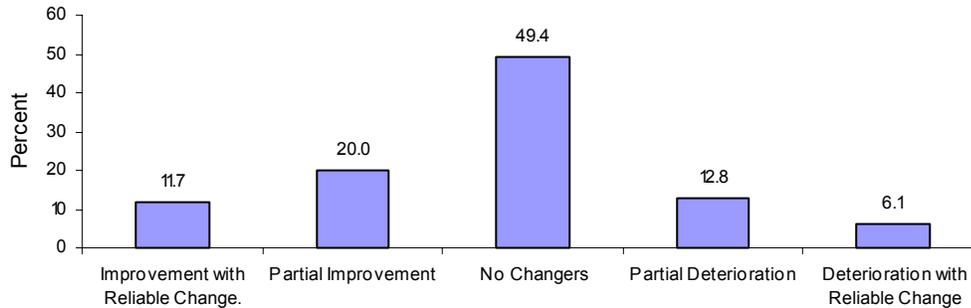


Note: Employment is a significant factor in multivariate analysis with change in Symptom Distress as dependent variable.

Change in Adult Consumer Form - Empowerment

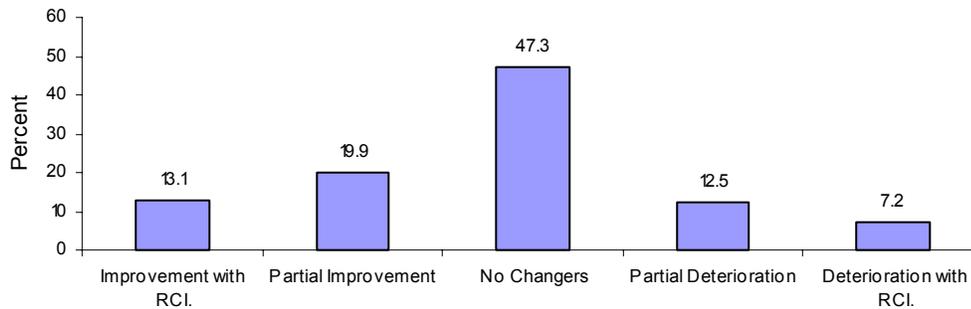
Empowerment – Overall Changes

Adult Consumer - Empowerment (Initial - 6-month) (N=14,176)



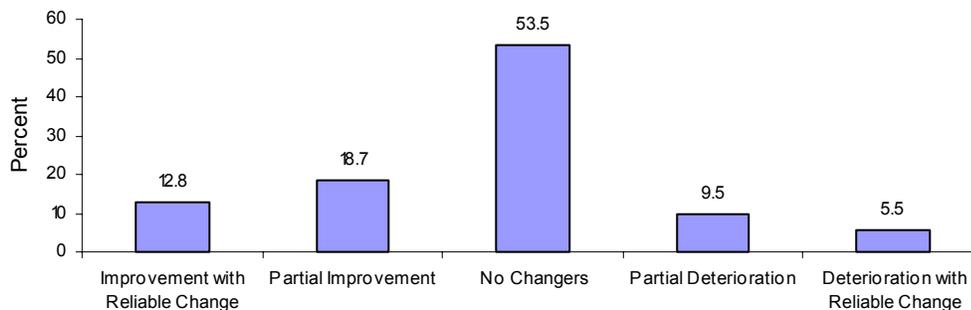
Note: Average number of days between assessments = 197 (S.D.=33)

Adult Consumer - Empowerment (Initial - 1-year) (N=10,828)



Note: Average number of days between assessments = 361 (S.D.=48)

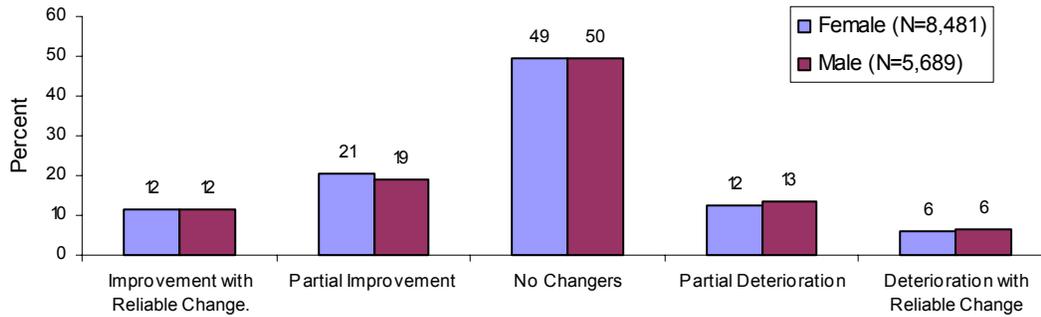
Adult Consumer - Empowerment (Initial - Termination) (N=3,152)



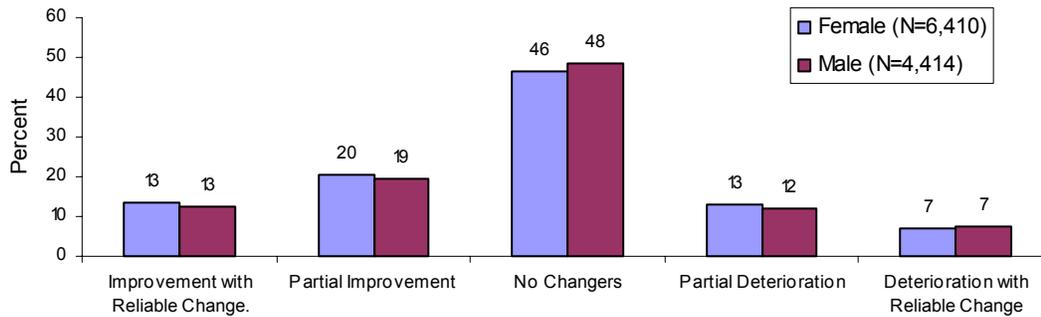
Note: Average number of days between assessments = 336 (S.D.=630)

Changes in Empowerment by Gender

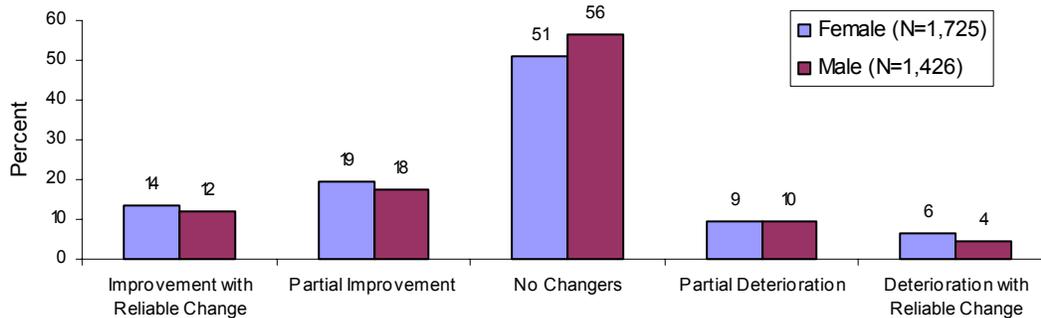
Adult Consumer - Empowerment (Initial - 6-month) by Gender



Adult Consumer - Empowerment (Initial - 1-year) by Gender

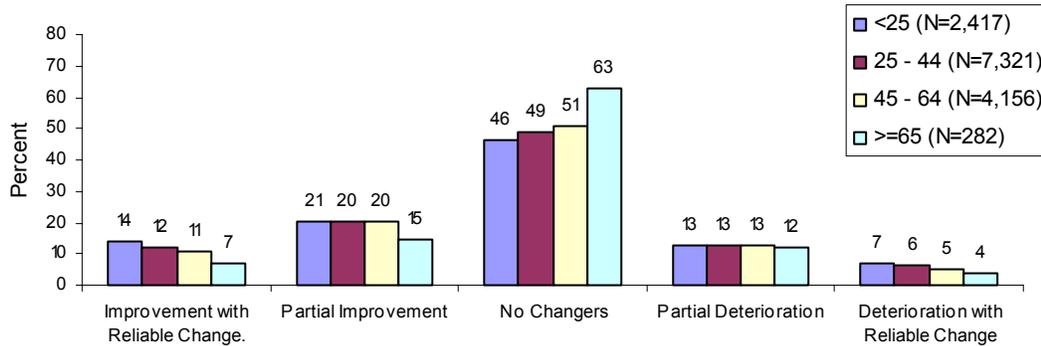


Adult Consumer - Empowerment (Initial - Termination) by Gender



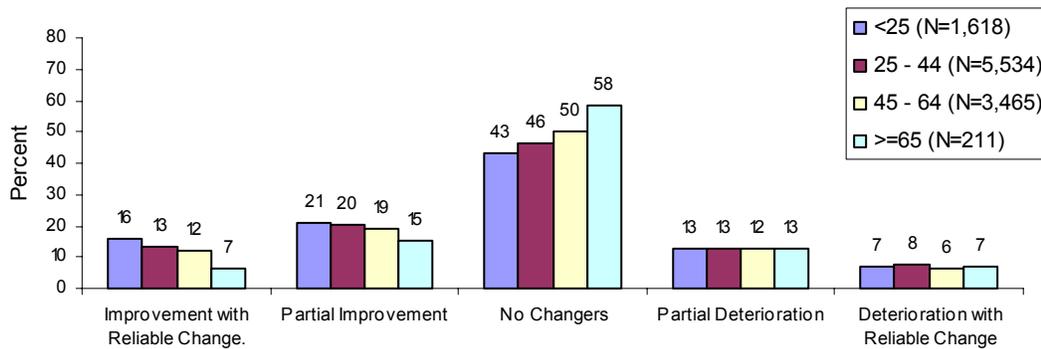
Changes in Empowerment by Age Group

Adult Consumer - Empowerment (Initial - 6-month) by Age



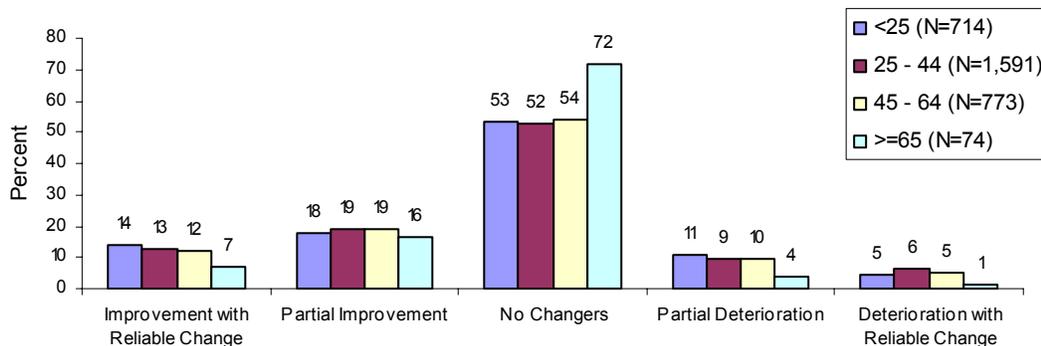
Note: Age group is a significant factor in multivariate analysis with change in Empowerment as dependent variable.

Adult Consumer - Empowerment (Initial - 1-year) by Age



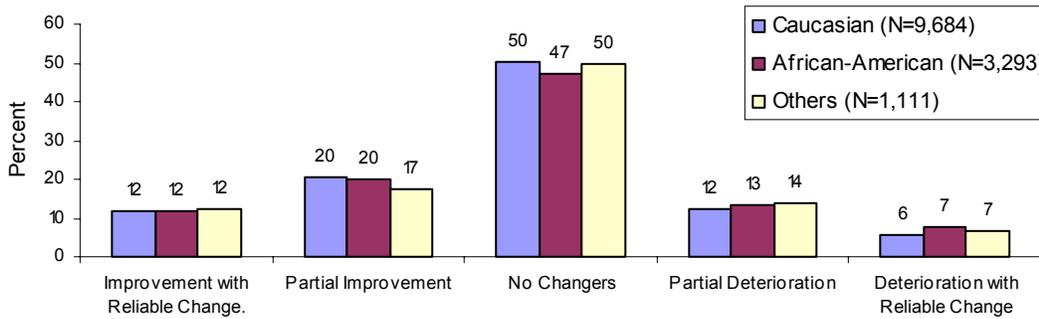
Note: Age group is a significant factor in multivariate analysis with change in Empowerment as dependent variable.

Adult Consumer - Empowerment (Initial - Termination) by Age

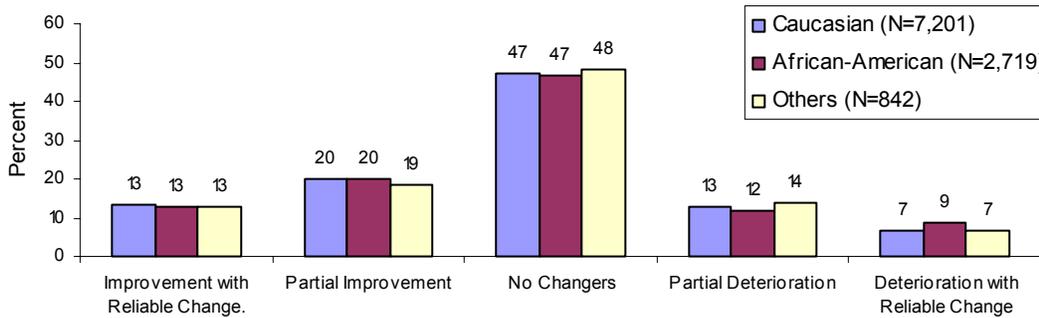


Changes in Empowerment by Race

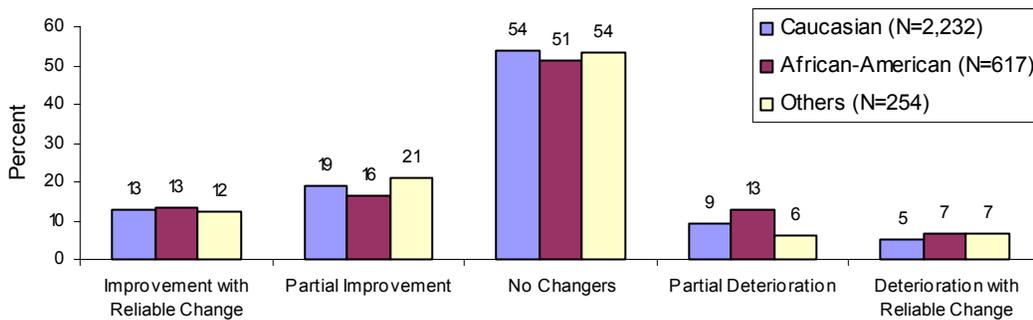
Adult Consumer - Empowerment (Initial - 6-month) by Race



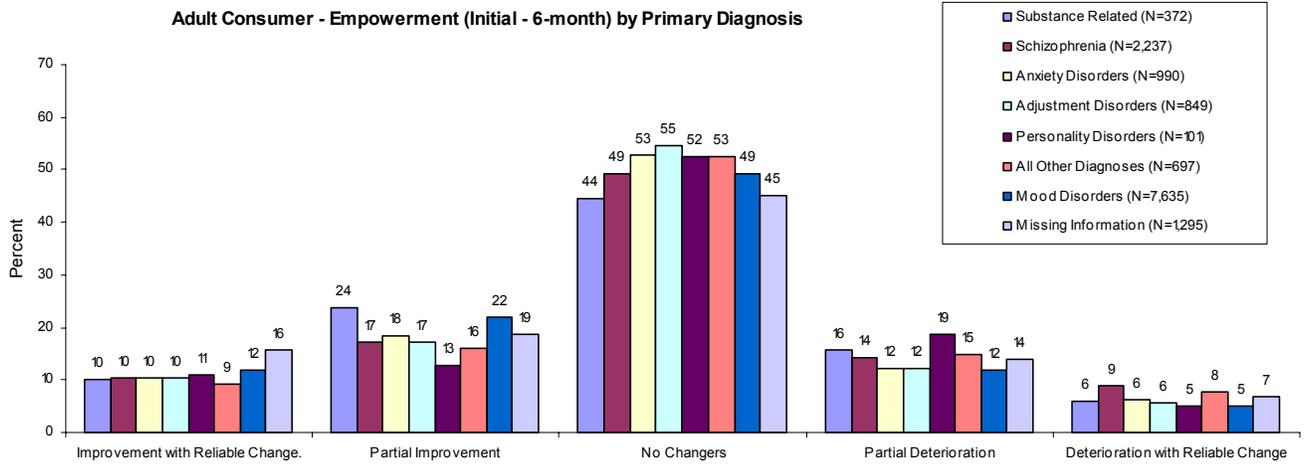
Adult Consumer - Empowerment (Initial - 1-year) by Race



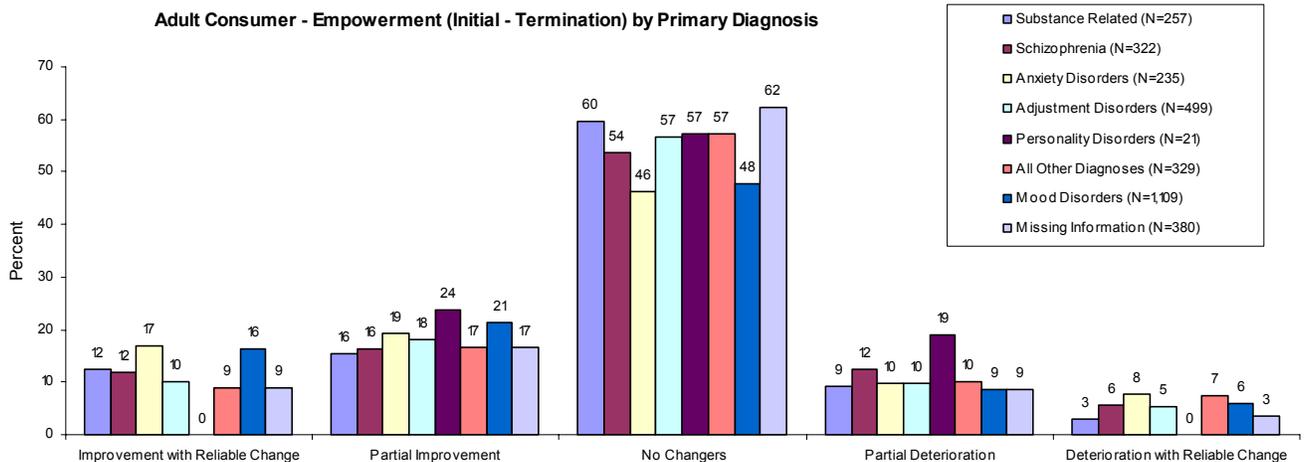
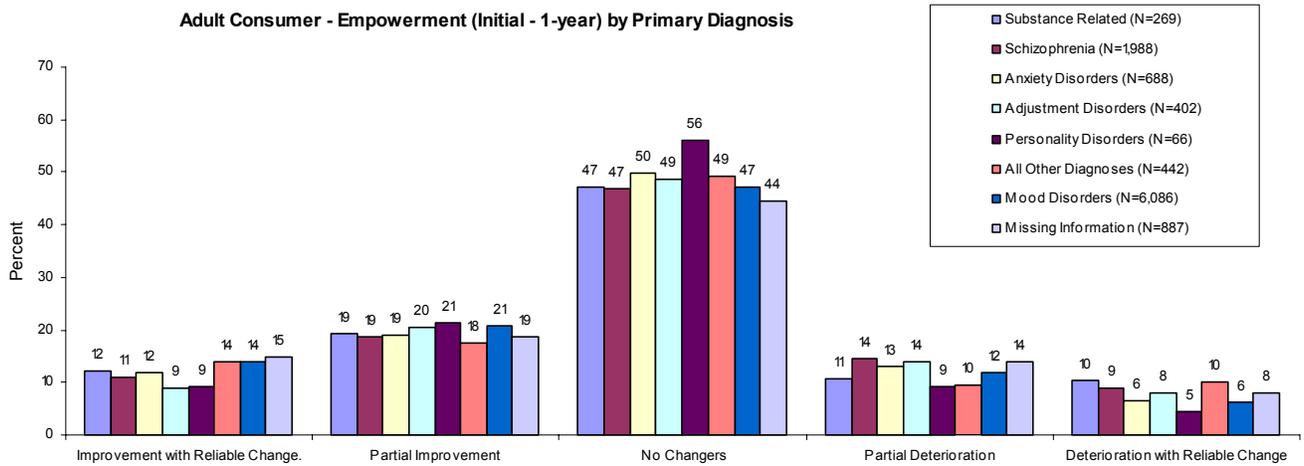
Adult Consumer - Empowerment (Initial - Termination) by Race



Changes in Empowerment by Primary Diagnosis

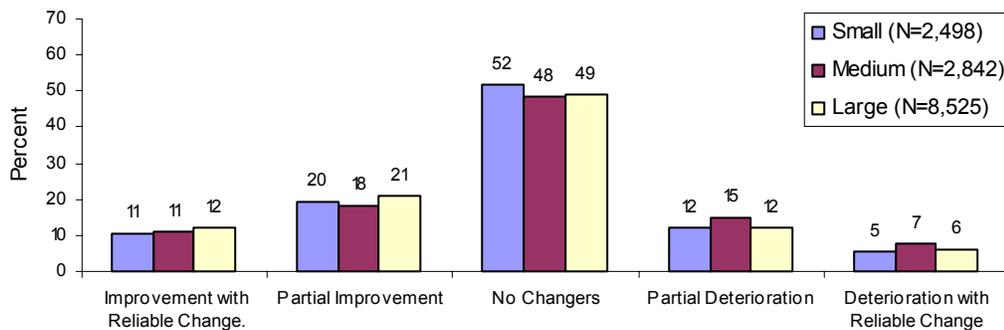


Note: Primary Diagnosis is a significant factor in multivariate analysis with change in Empowerment as dependent variable.



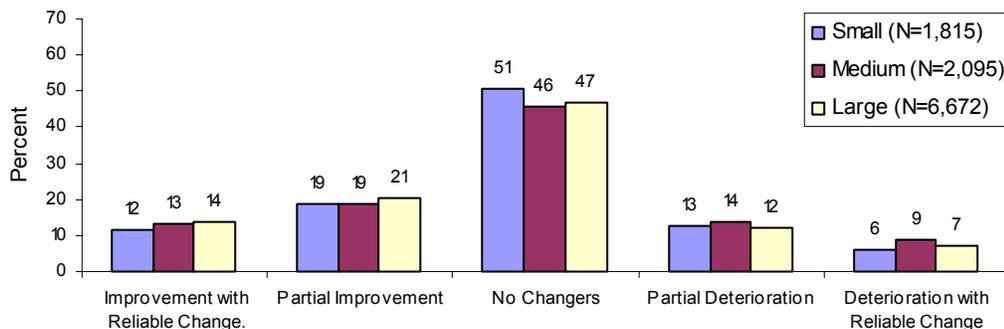
Changes in Empowerment by County Size⁶

Adult Consumer - Empowerment (Initial - 6-month) by County Size

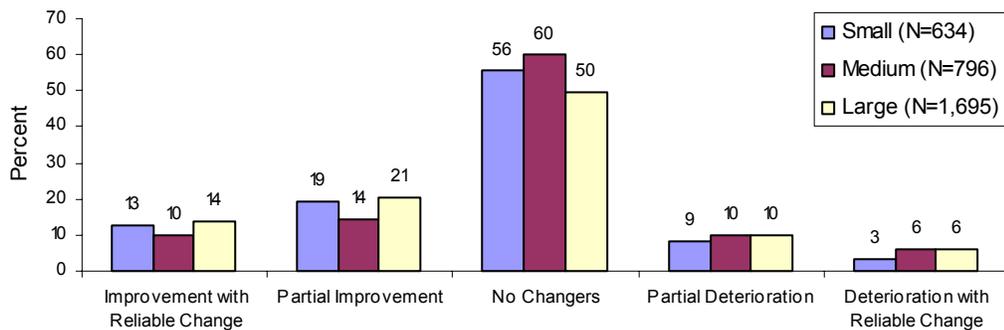


Note: County Size is a significant factor in multivariate analysis with change in Empowerment as dependent variable.

Adult Consumer - Empowerment (Initial - 1-year) by County Size

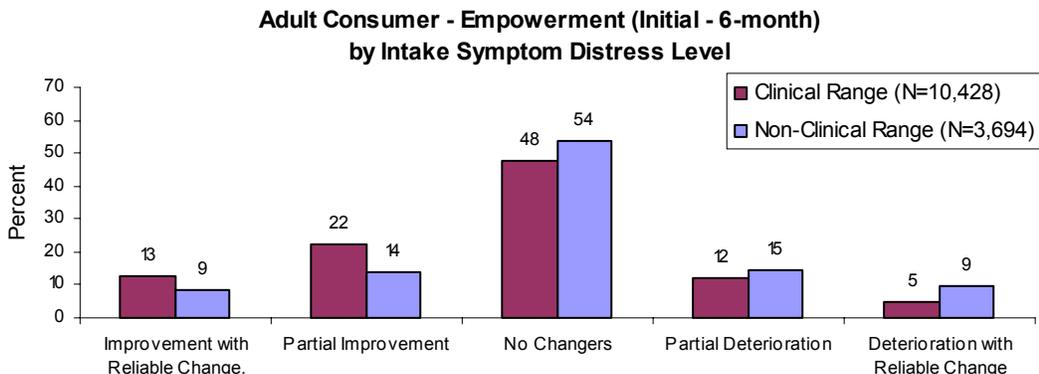


Adult Consumer - Empowerment (Initial - Termination) by County Size

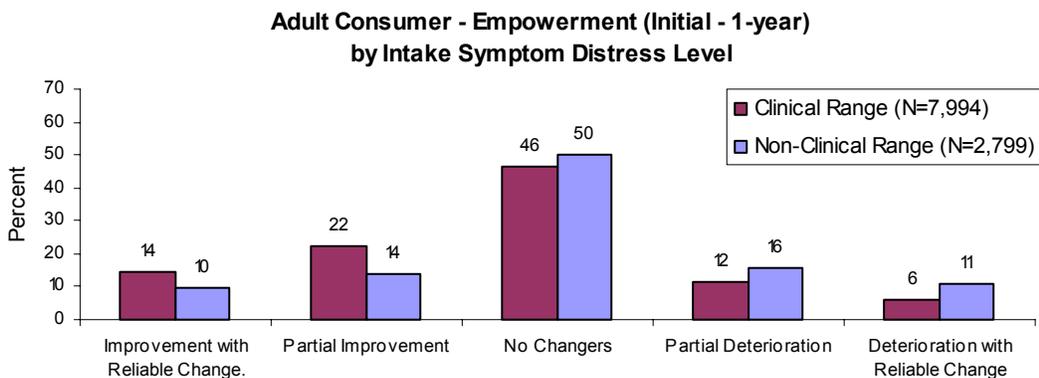


⁶ Large counties are those with populations greater than 300,000. Medium size counties have a population between 100,000 and 300,000. Small counties have a population less than 100,000.

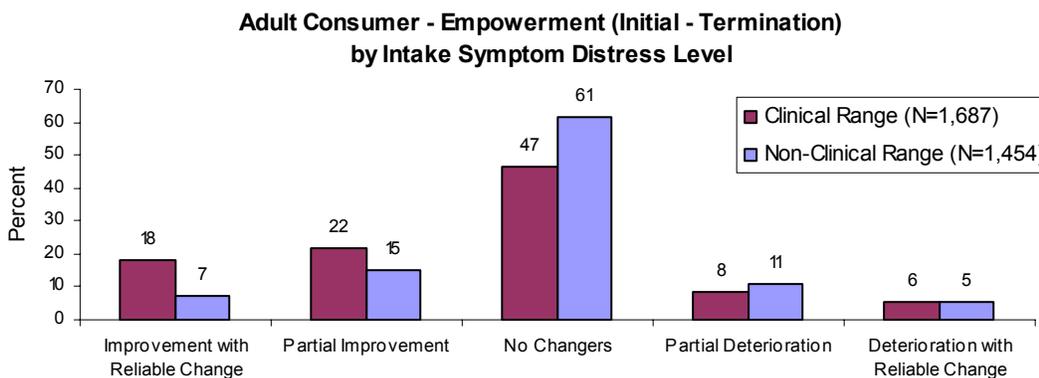
Changes in Empowerment by Intake Symptom Distress Level



Note: Intake Symptom Distress level is a significant factor in multivariate analysis with change in Empowerment as dependent variable.

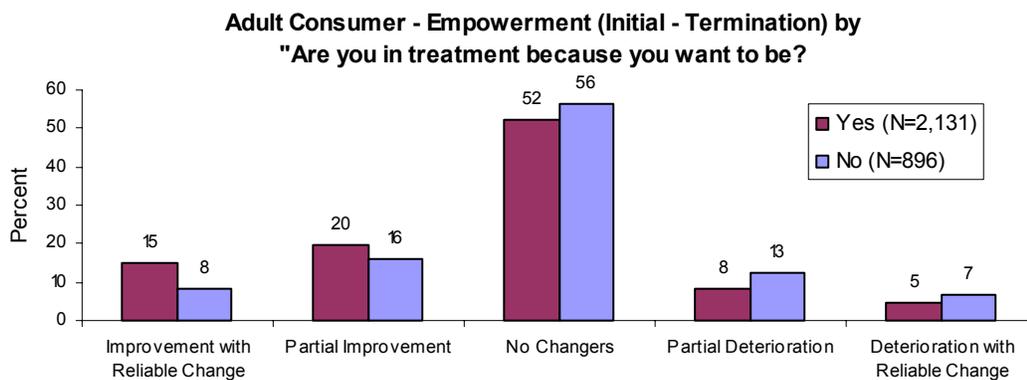
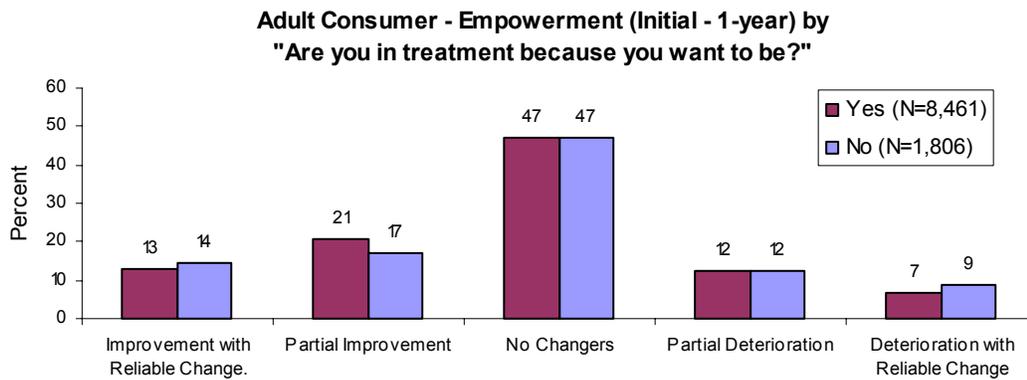
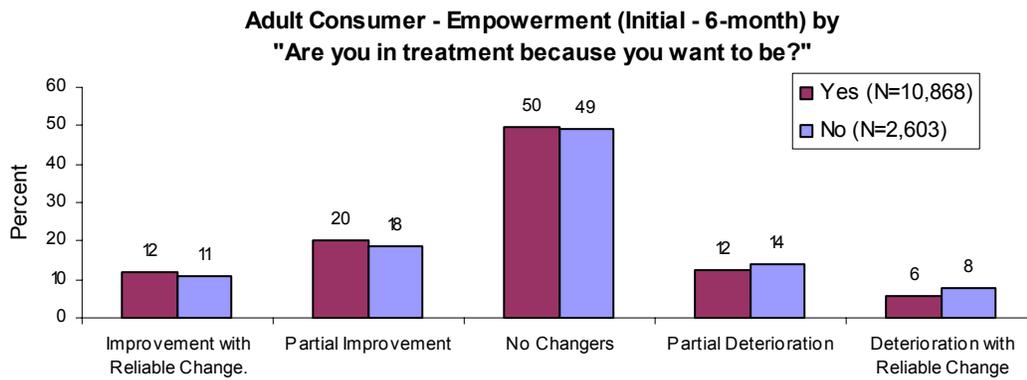


Note: Intake Symptom Distress level is a significant factor in multivariate analysis with change in Empowerment as dependent variable.



Note: Intake Symptom Distress level is a significant factor in multivariate analysis with change in Empowerment as dependent variable.

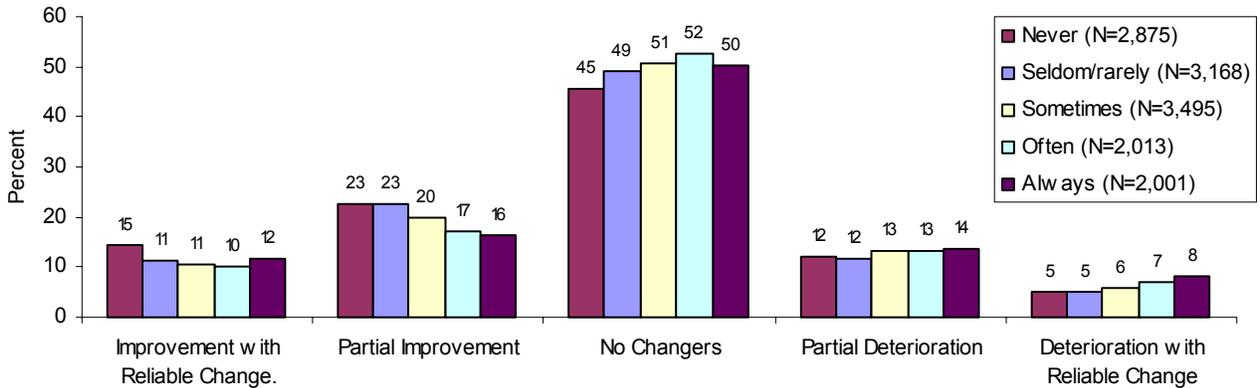
Changes in Empowerment by “Are you in treatment because you want to be?”



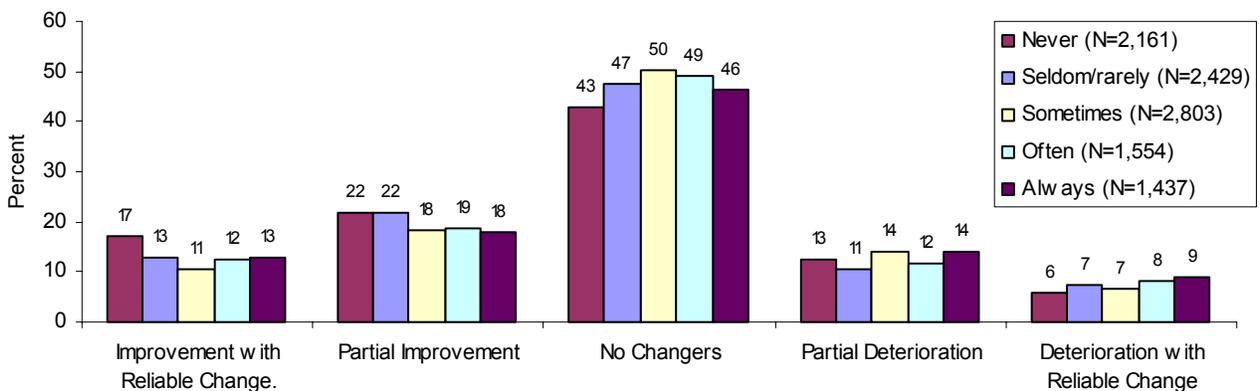
Note: “Are you in treatment because you want to be?” is a significant factor in multivariate analysis with change in Empowerment as dependent variable.

Changes in Empowerment by "How often does your physical condition interfere with your day-to-day functioning?"

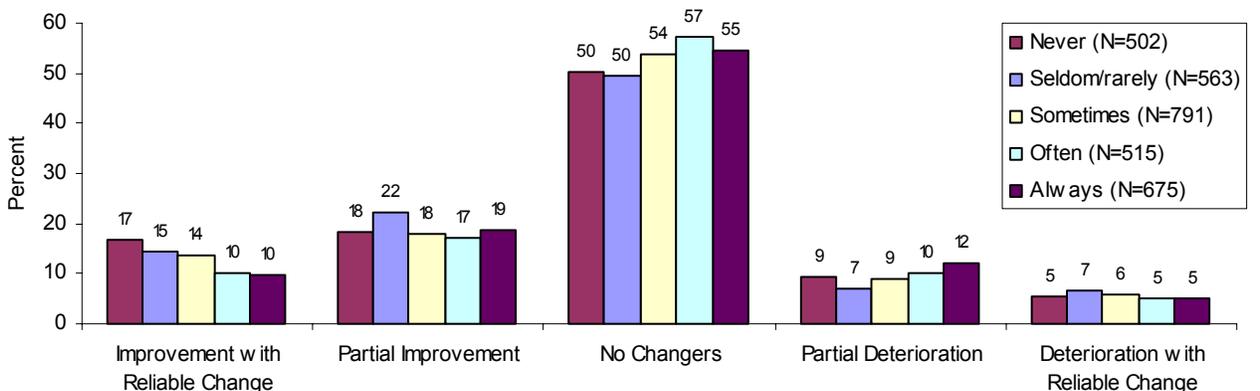
Adult Consumer - Empowerment (Initial - 6 month) by "How often does your physical condition interfere with your day-to-day functioning?"



Adult Consumer - Empowerment (Initial - 1-year) by "How often does your physical condition interfere with your day-to-day functioning?"

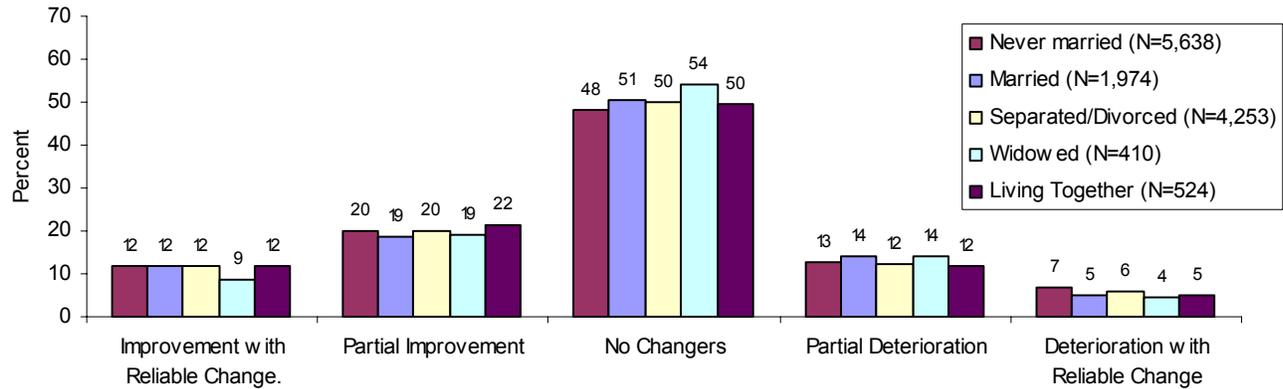


Adult Consumer - Empowerment (Initial - Termination) by "How often does your physical condition interfere with your day-to-day functioning?"

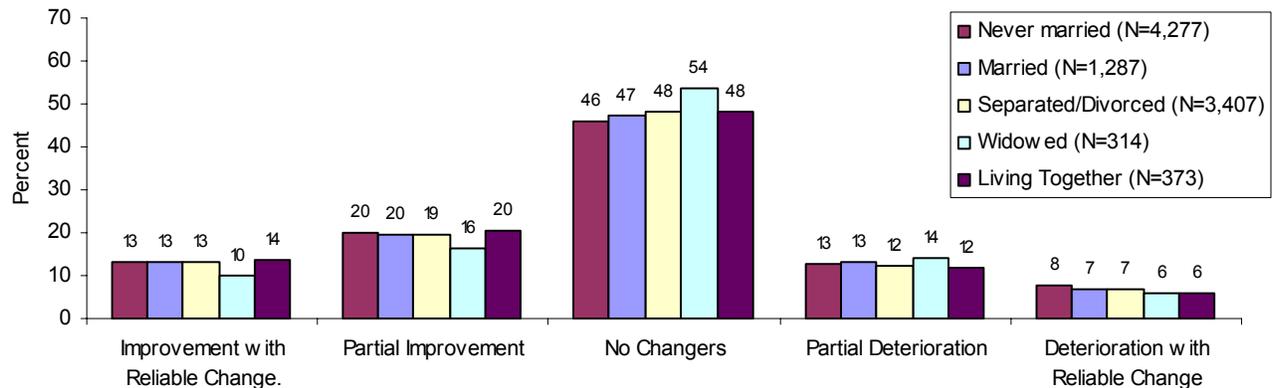


Changes in Empowerment by Marital Status

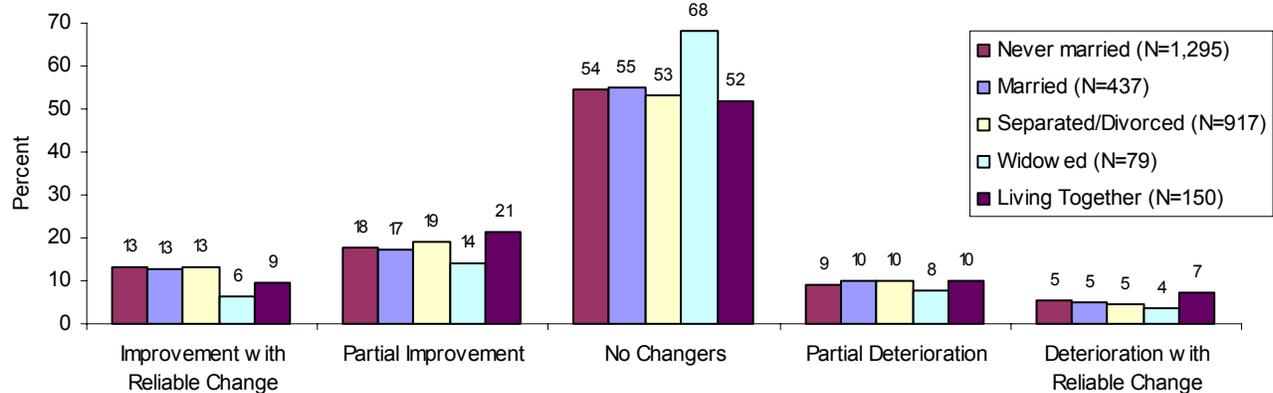
Adult Consumer - Empowerment (Initial - 6-month) by Marital Status



Adult Consumer - Empowerment (Initial - 1-year) by Marital Status

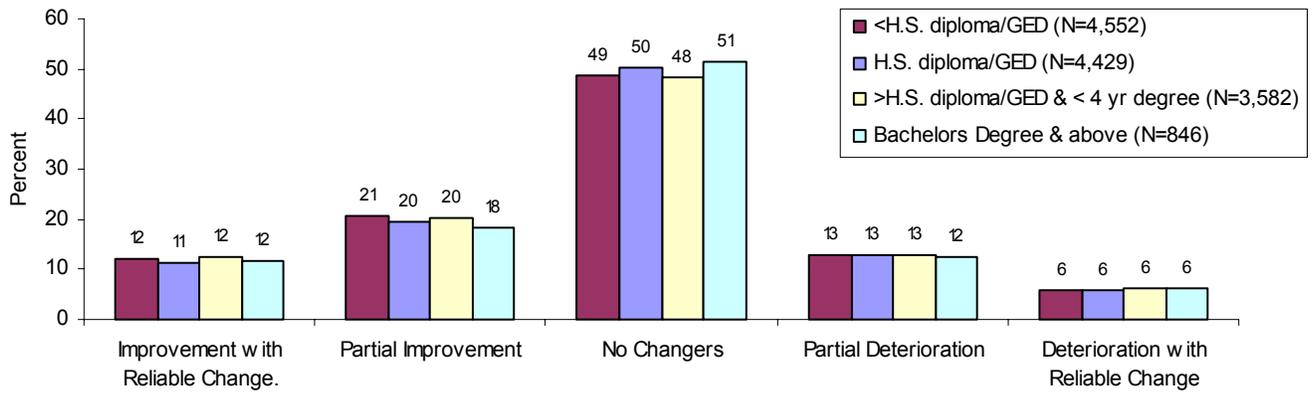


Adult Consumer - Empowerment (Initial - Termination) by Marital Status

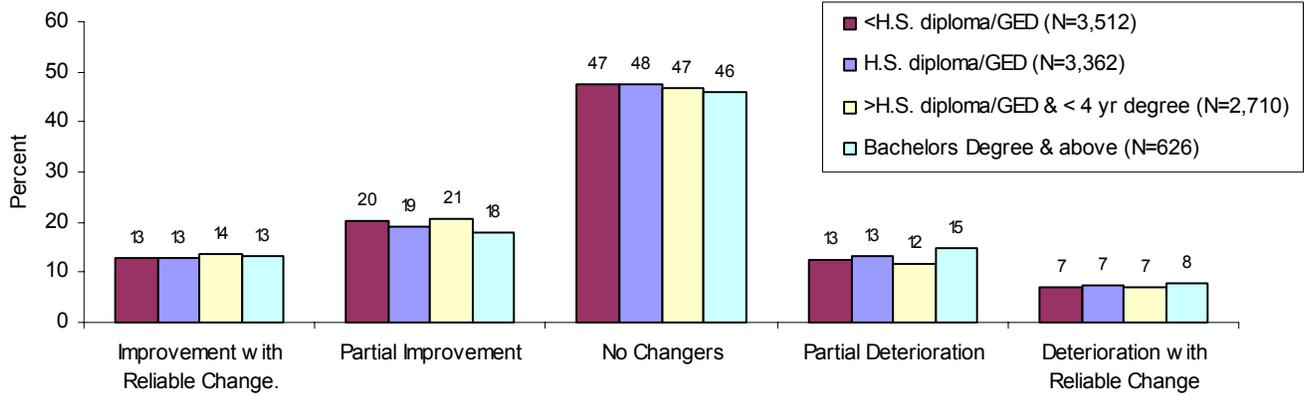


Changes in Empowerment by Education Level

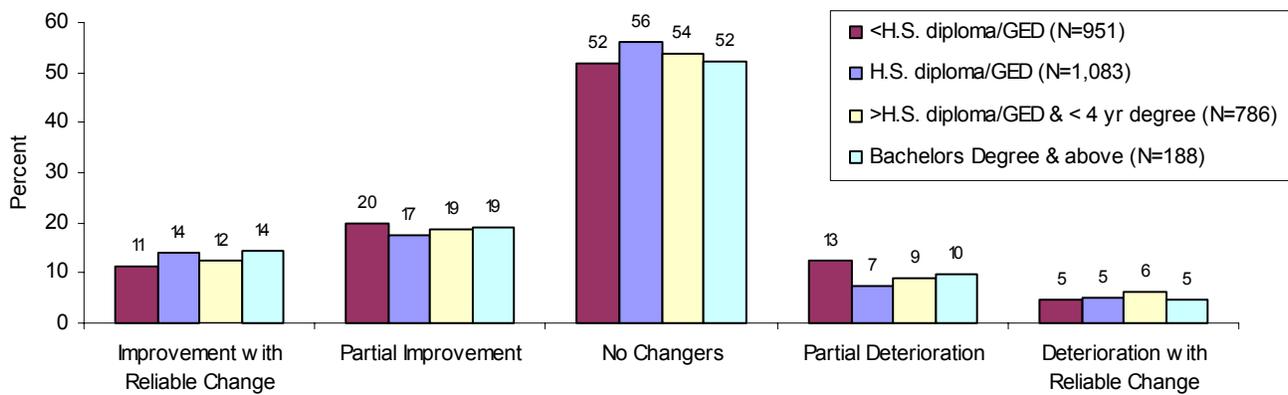
Adult Consumer - Empowerment (Initial - 6-month) by Education Level



Adult Consumer - Empowerment (Initial - 1-year) by Education Level

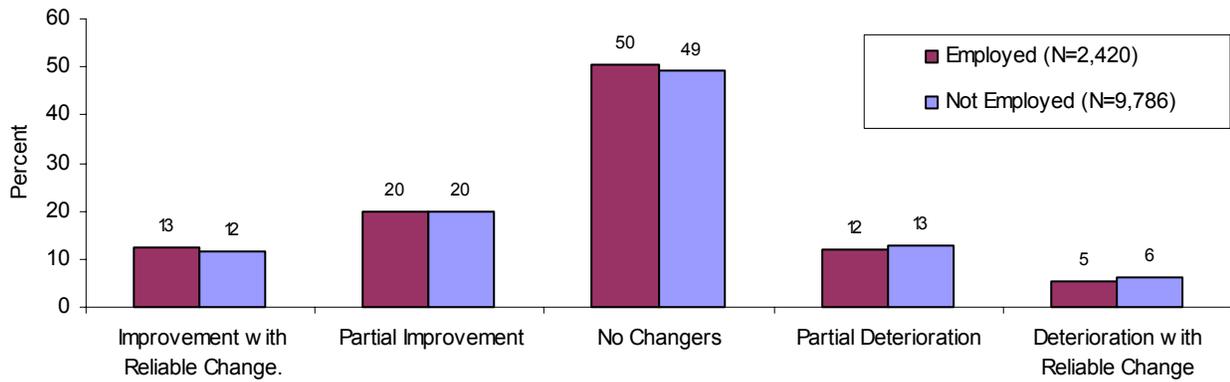


Adult Consumer - Empowerment (Initial - Termination) by Education Level



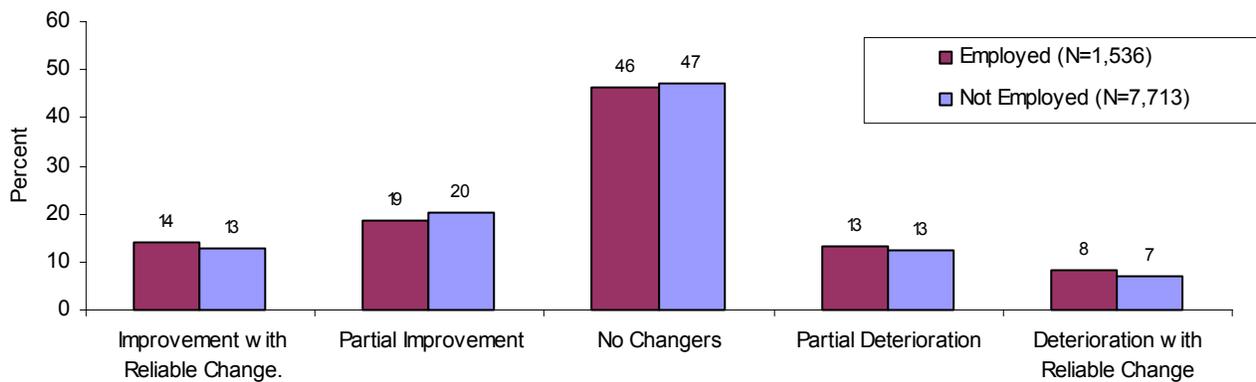
Changes in Empowerment by Employment Status

Adult Consumer - Empowerment (Initial - 6-month) by Employment Status

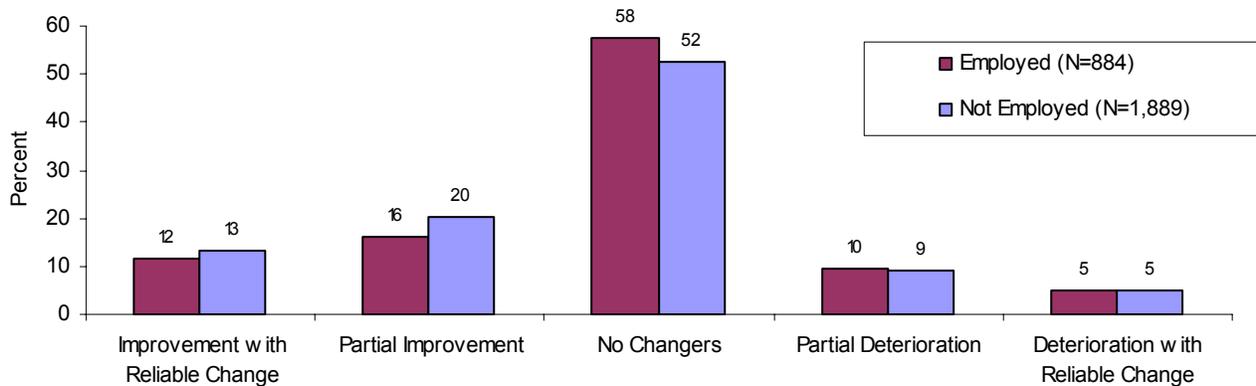


Note: Employment Status is a significant factor in multivariate analysis with change in Empowerment as dependent variable.

Adult Consumer - Empowerment (Initial - 1-year) by Employment Status



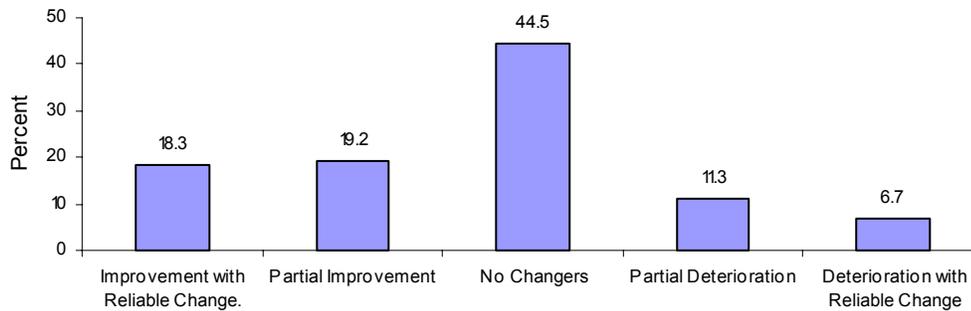
Adult Consumer - Empowerment (Initial - Termination) by Employment Status



Change in Adult Consumer Form - Quality of Life

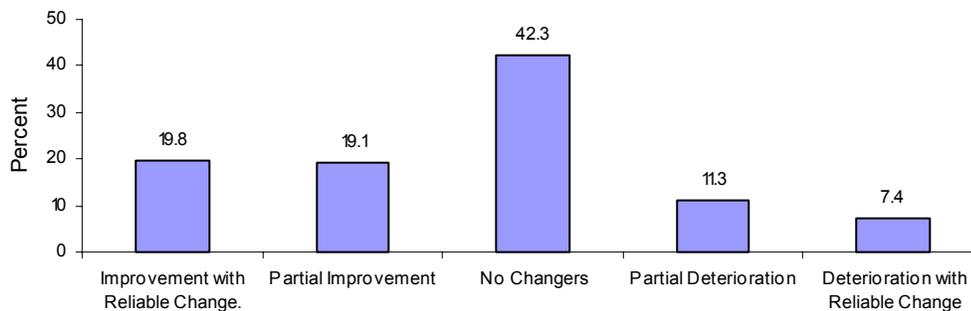
Quality of Life – Overall Changes

Adult Consumer - QOL (Initial - 6-month) (N=25,492)



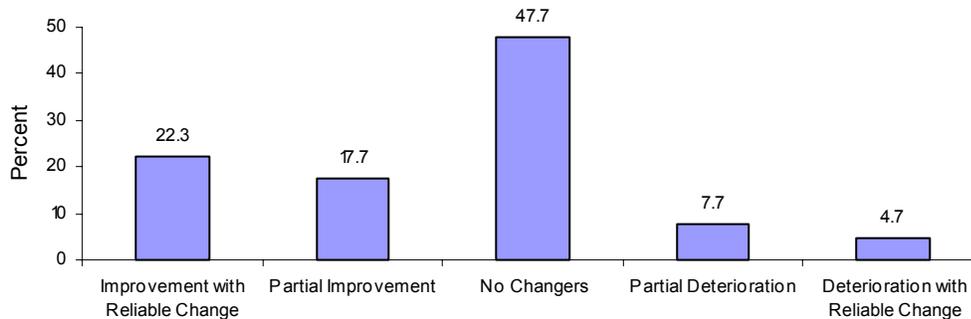
Note: Average number of days between assessments = 198 (S.D.=35)

Adult Consumer - QOL (Initial - 1-year) (N=20,281)



Note: Average number of days between assessments = 359 (S.D.=48)

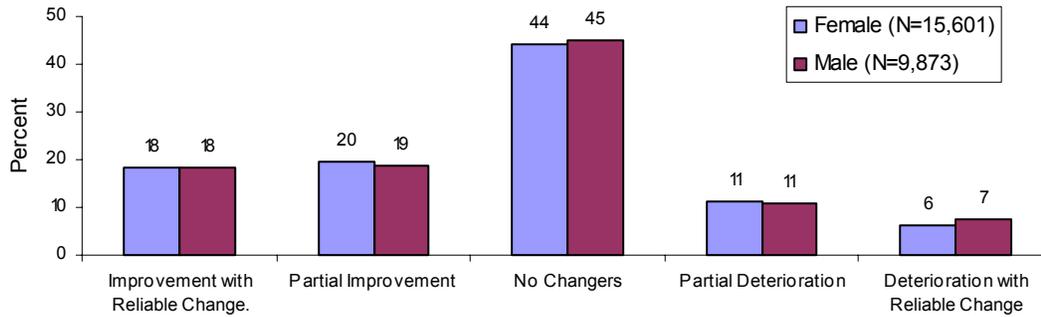
Adult Consumer - QOL (Initial - Termination) (N=9,640)



Note: Average number of days between assessments = 260 (S.D.=493)

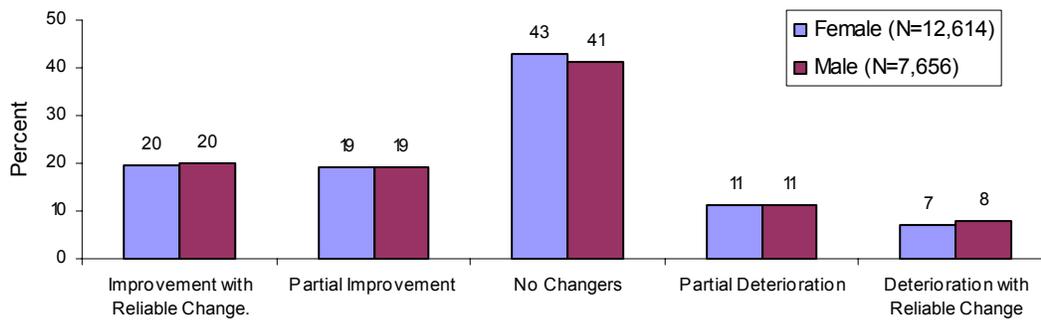
Changes in Quality of Life by Gender

Adult Consumer - QOL (Initial - 6-month) by Gender



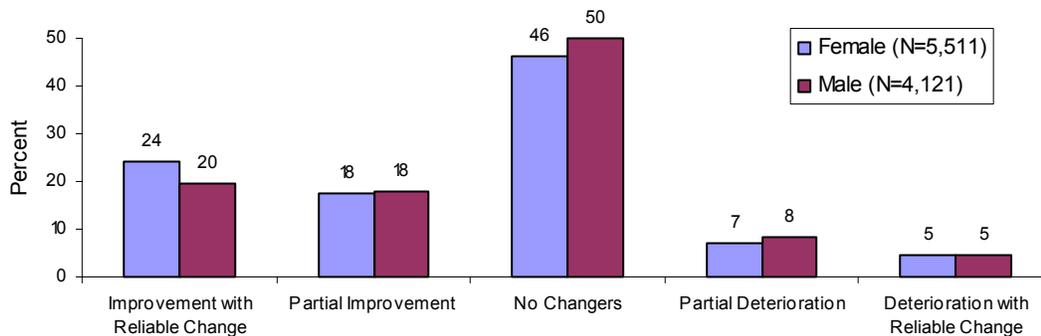
Note: Gender is a significant factor in multivariate analysis with change in Quality of Life dependent variable.

Adult Consumer - QOL (Initial - 1-year) by Gender



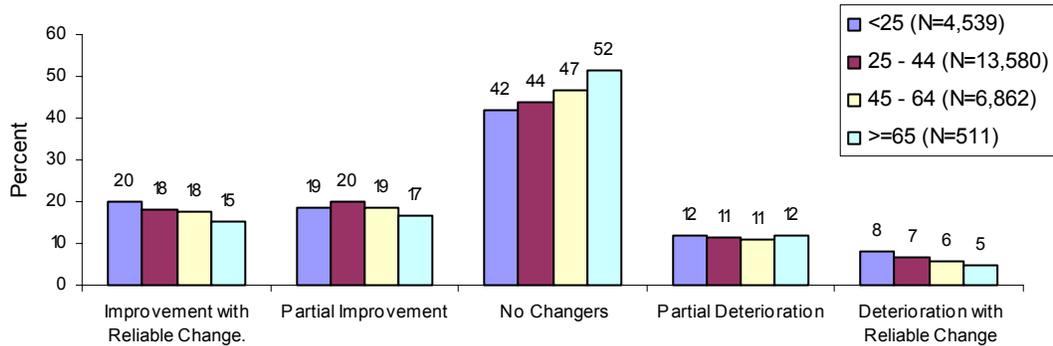
Note: Gender is a significant factor in multivariate analysis with change in Quality of Life dependent variable.

Adult Consumer - QOL (Initial - Termination) by Gender



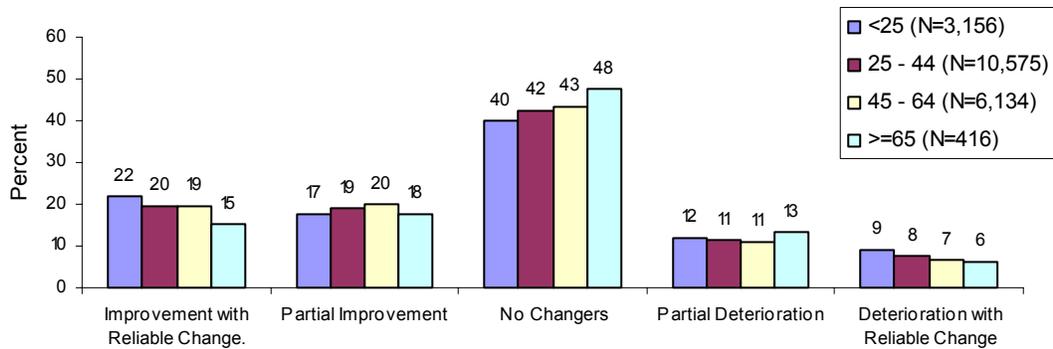
Changes in Quality of Life by Age Group

Adult Consumer - QOL (Initial - 6-month) by Age

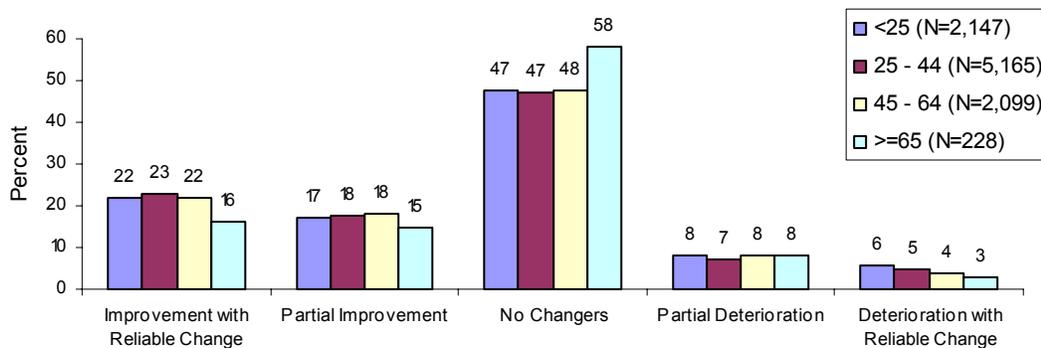


Note: Age Group is a significant factor in multivariate analysis with change in Quality of Life dependent variable.

Adult Consumer - QOL (Initial - 1-year) by Age



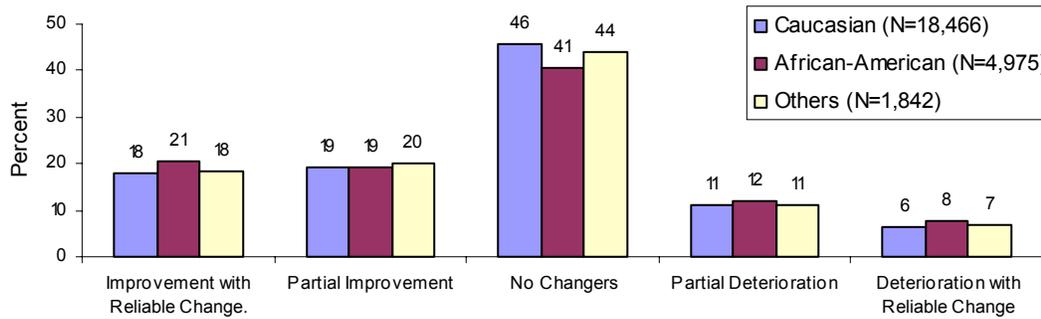
Adult Consumer - QOL (Initial - Termination) by Age



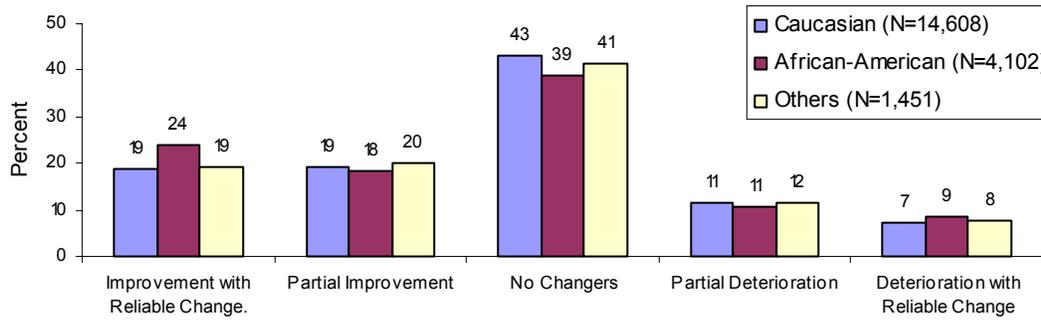
Note: Gender is a significant factor in multivariate analysis with change in Quality of Life dependent variable.

Changes in Quality of Life by Race

Adult Consumer - QOL (Initial - 6-month) by Race

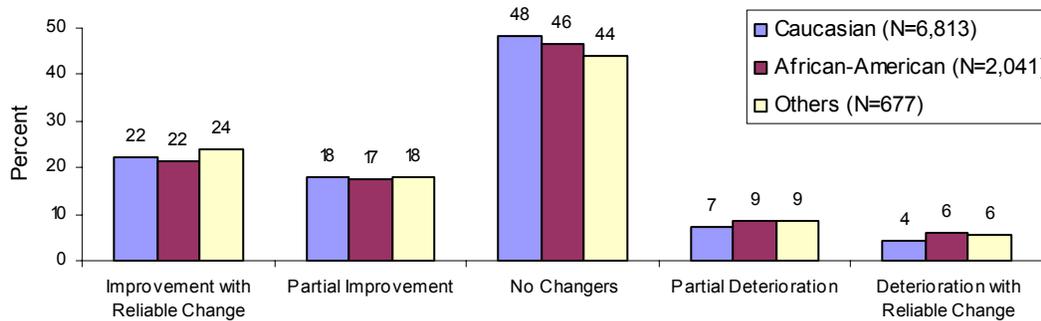


Adult Consumer - QOL (Initial - 1-year) by Race

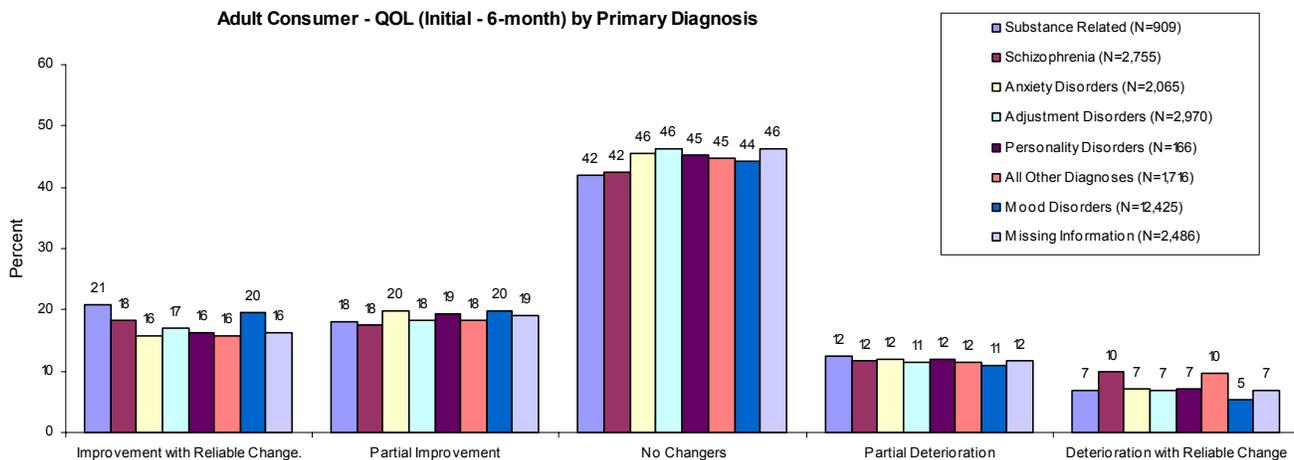


Note: Race is a significant factor in multivariate analysis with change in Quality of Life dependent variable.

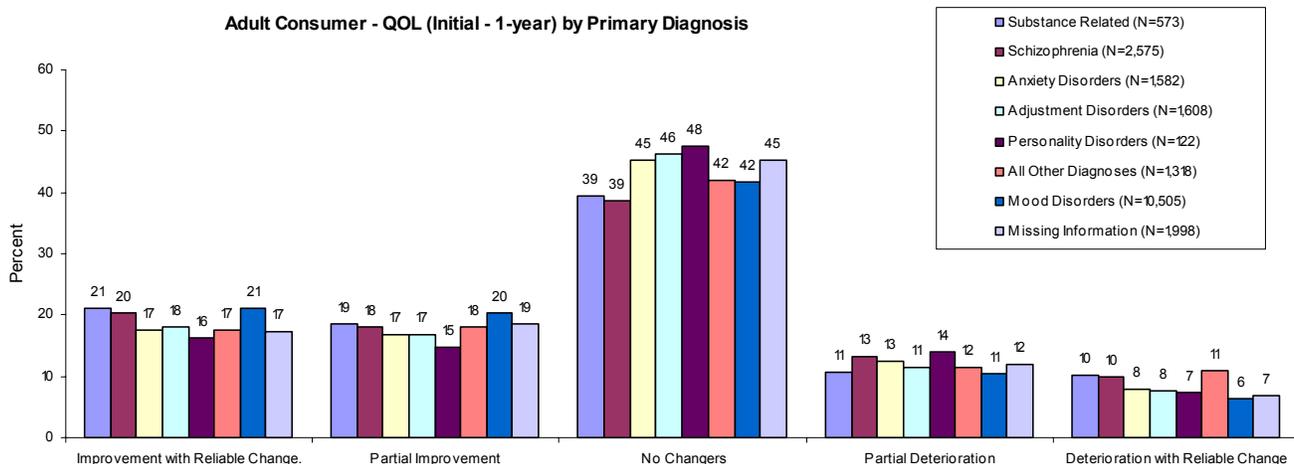
Adult Consumer - QOL (Initial - Termination) by Race



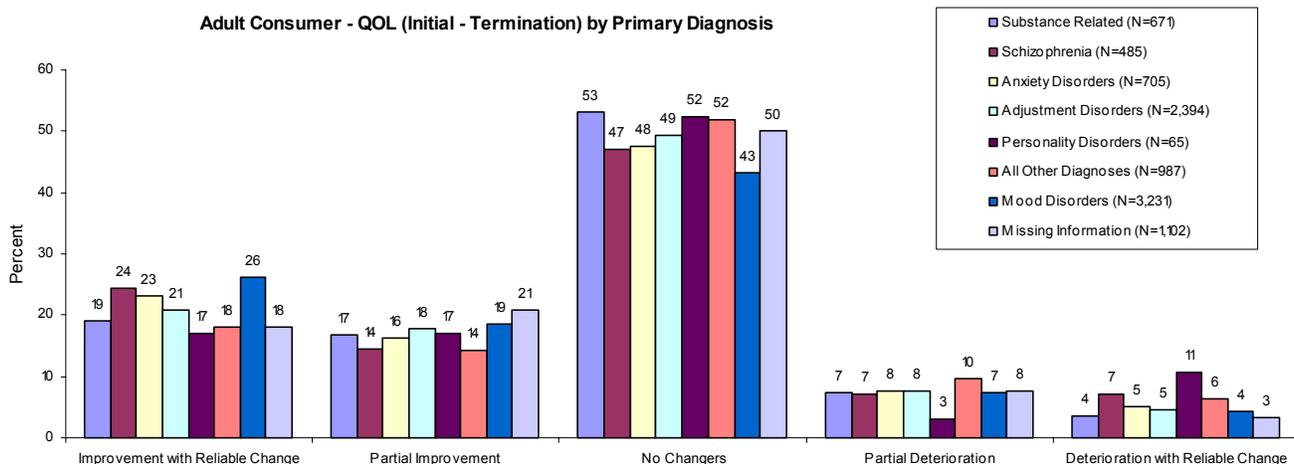
Changes in Quality of Life by Primary Diagnosis



Note: Primary Diagnosis is a significant factor in multivariate analysis with change in Quality of Life dependent variable.



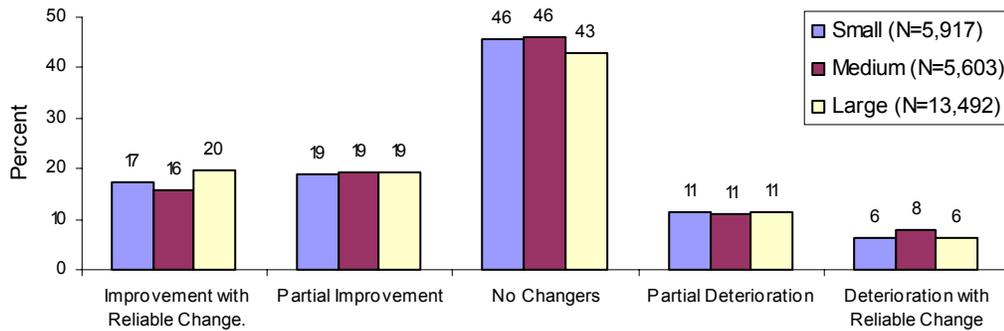
Note: Primary Diagnosis is a significant factor in multivariate analysis with change in Quality of Life dependent variable.



Note: Primary Diagnosis is a significant factor in multivariate analysis with change in Quality of Life dependent variable.

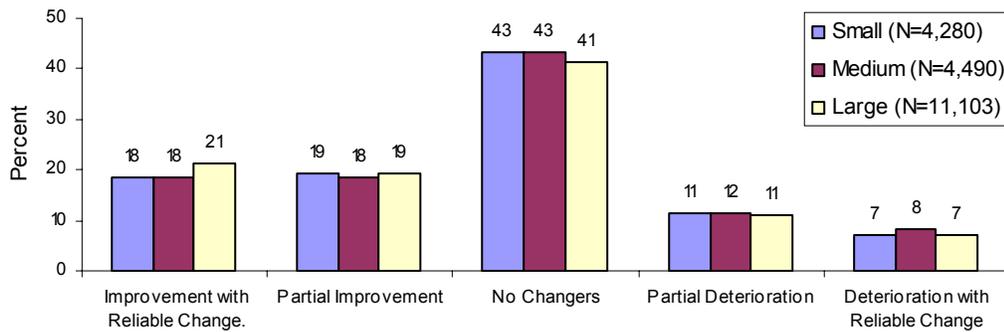
Changes in Quality of Life by County Size⁷

Adult Consumer - QOL (Initial - 6-month) by County Size

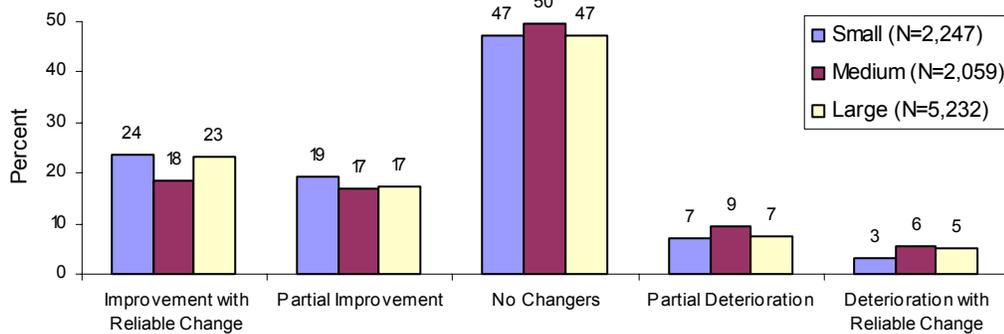


Note: County Size is a significant factor in multivariate analysis with change in Quality of Life dependent variable.

Adult Consumer - QOL (Initial - 1-year) by County Size



Adult Consumer - QOL (Initial - Termination) by County Size

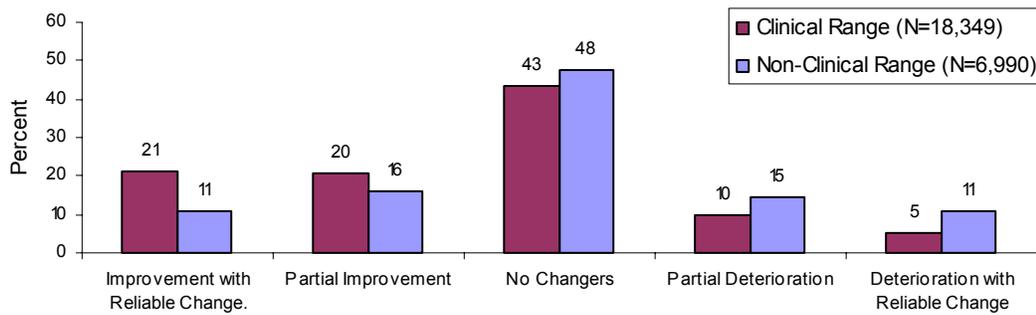


Note: County Size is a significant factor in multivariate analysis with change in Quality of Life dependent variable.

⁷Large counties are those with populations greater than 300,000. Medium size counties have a population between 100,000 and 300,000. Small counties have a population less than 100,000.

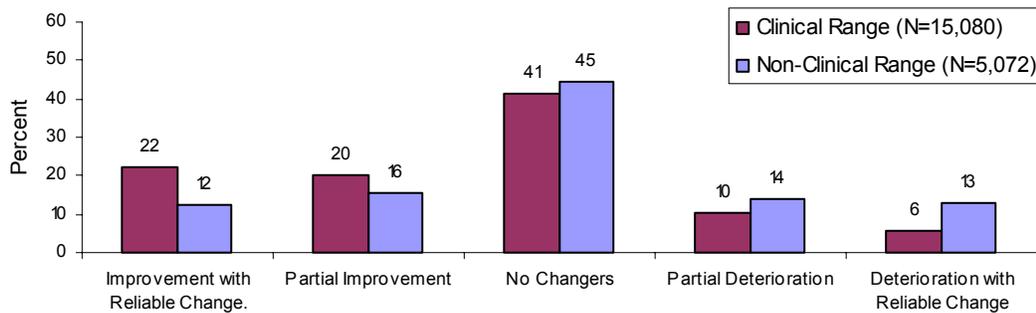
Changes in Quality of Life by Intake Symptom Distress Level

Adult Consumer - QOL (Initial - 6-month) by Intake Symptom Distress Level



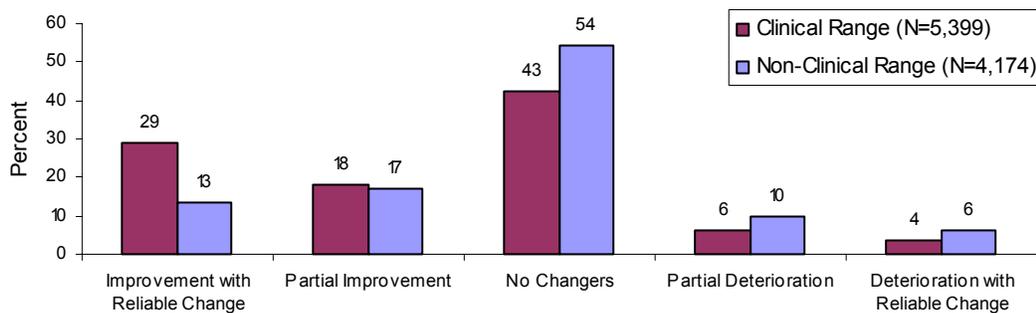
Note: Intake Symptom Distress level is a significant factor in multivariate analysis with Quality of Life as dependent variable.

Adult Consumer - QOL (Initial - 1-year) by Intake Symptom Distress Level



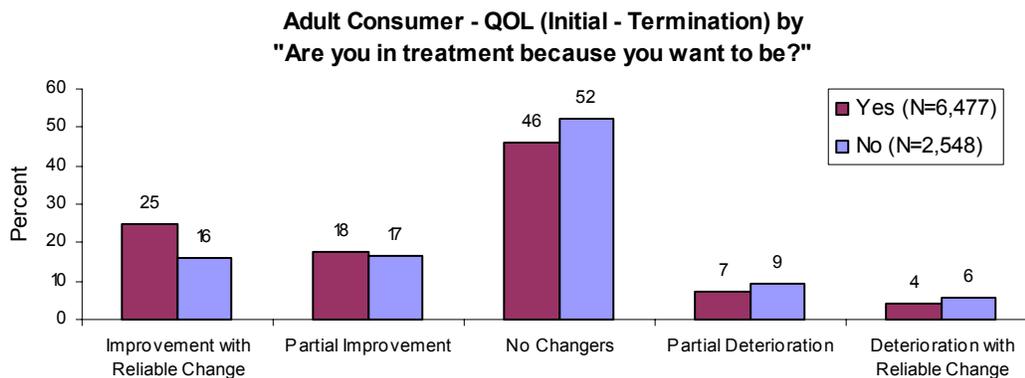
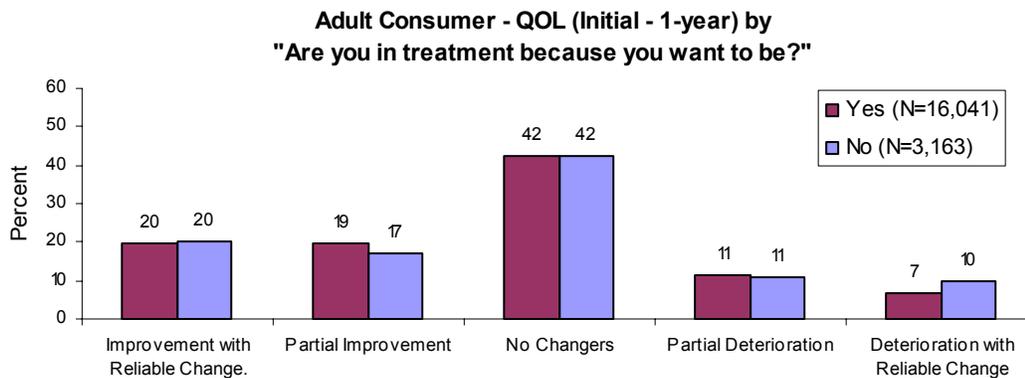
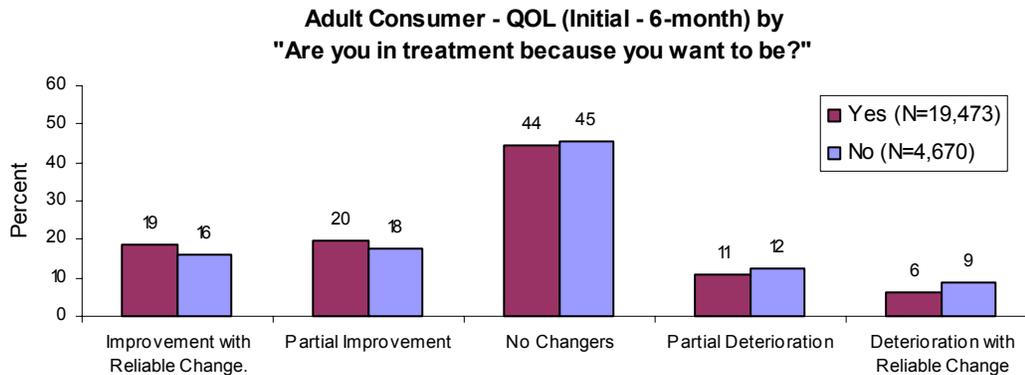
Note: Intake Symptom Distress level is a significant factor in multivariate analysis with Quality of Life as dependent variable.

Adult Consumer - QOL (Initial - Termination) by Intake Symptom Distress Level



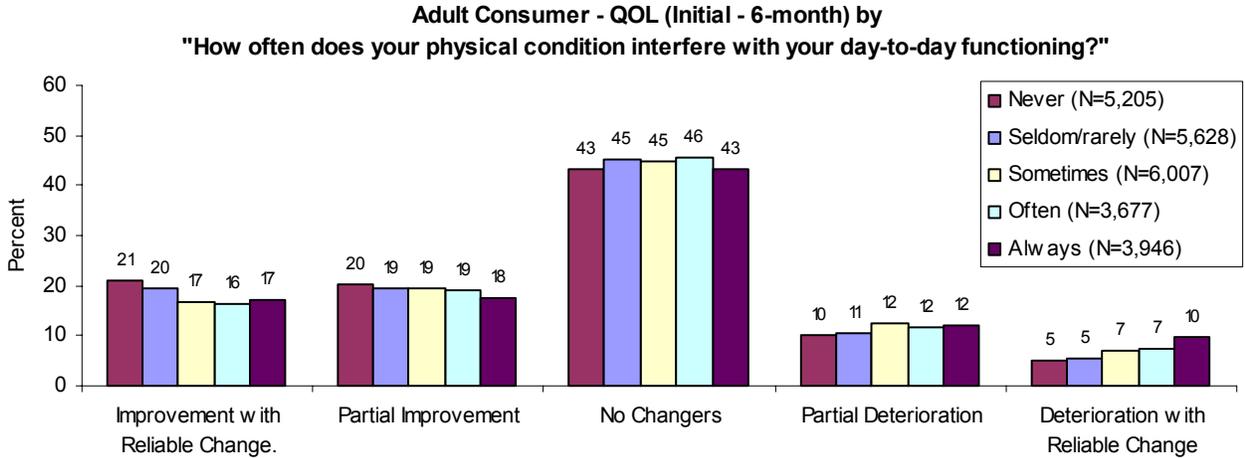
Note: Intake Symptom Distress level is a significant factor in multivariate analysis with Quality of Life as dependent variable.

Changes in Quality of Life by “Are you in treatment because you want to be?”

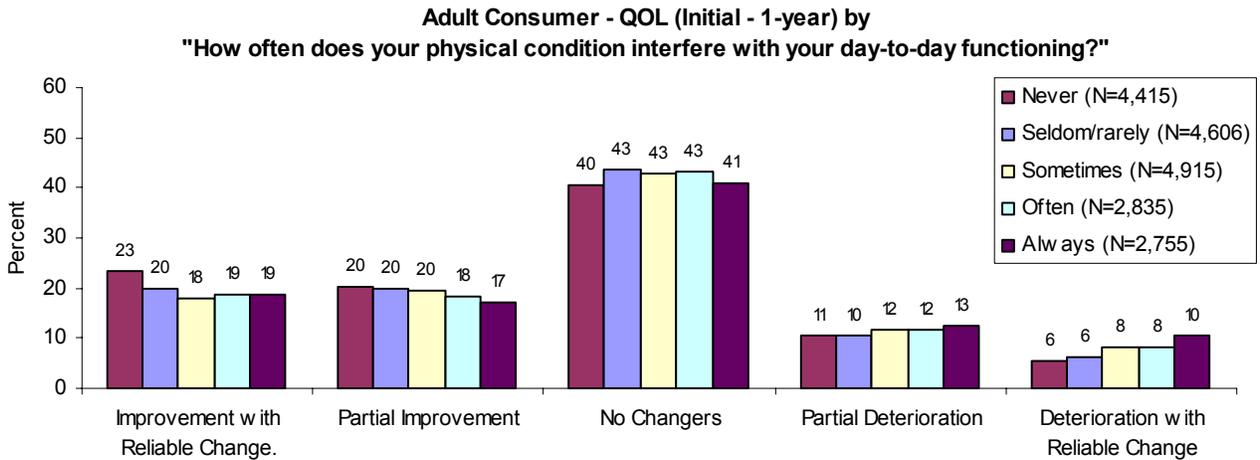


Note: “Are you in treatment because you want to be?” is a significant factor in multivariate analysis with change in Quality of Life as dependent variable.

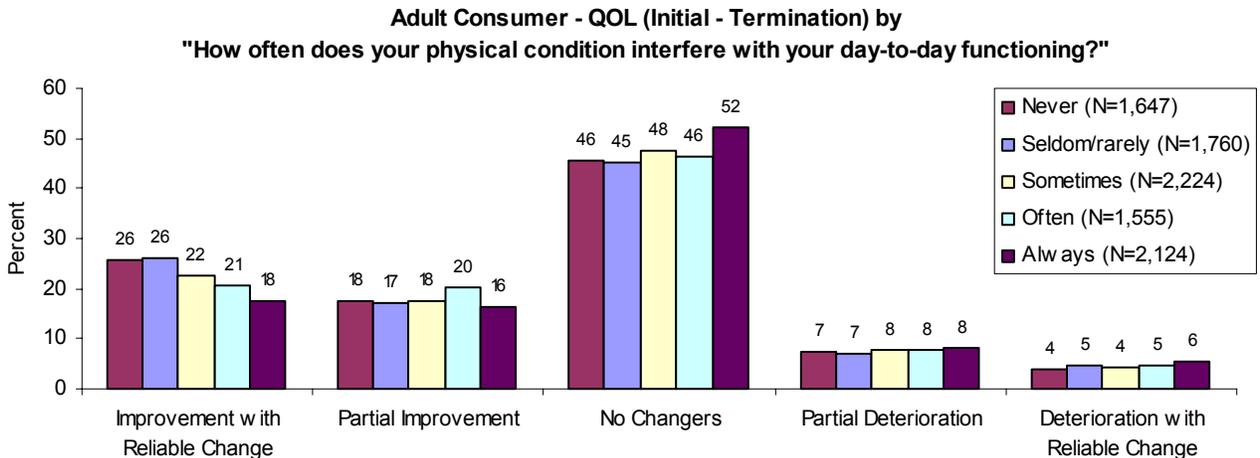
Changes in Quality of Life by “How often does your physical condition interfere with your day-to-day functioning?”



Note: “How often does your physical condition interfere with your day-to-day functioning?” is a significant factor in multivariate analysis with change in Quality of Life as dependent variable.

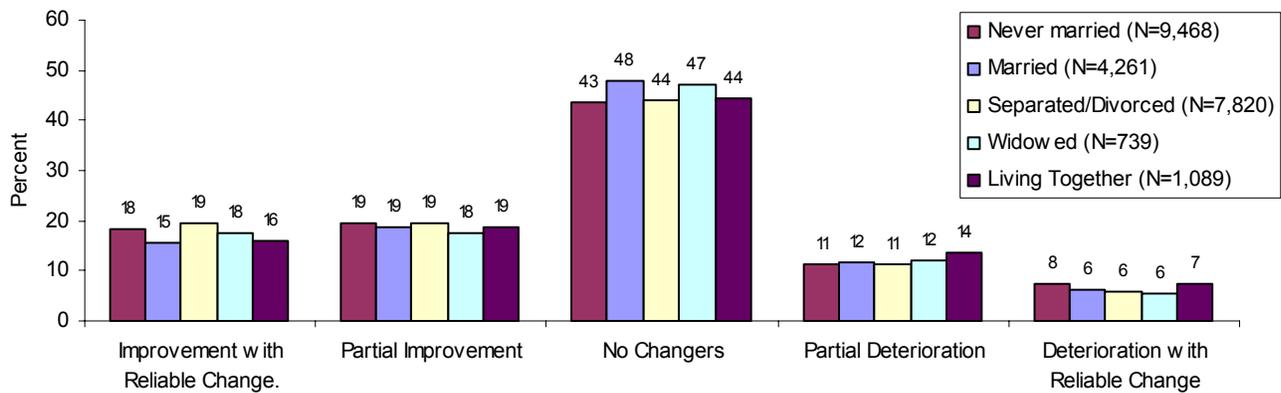


Note: “How often does your physical condition interfere with your day-to-day functioning?” is a significant factor in multivariate analysis with change in Quality of Life as dependent variable.



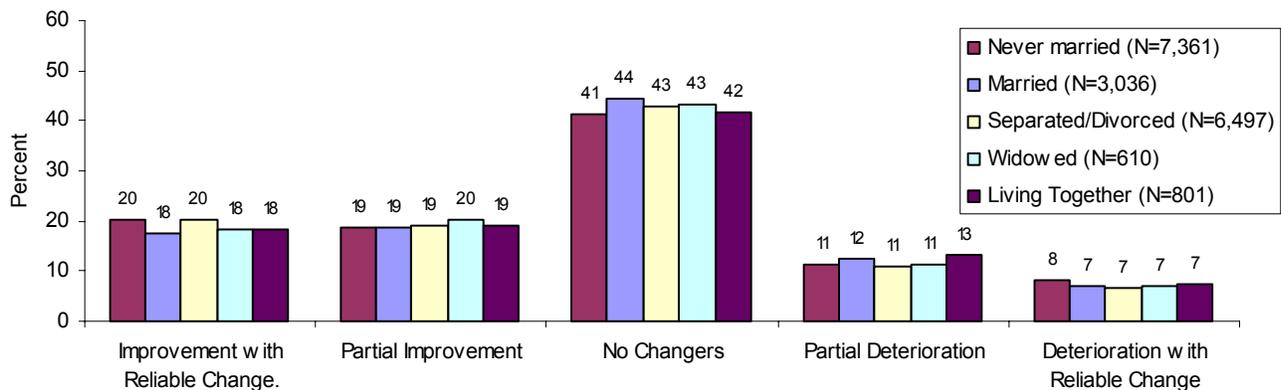
Changes in Quality of Life by Marital Status

Adult Consumer - QOL (Initial - 6-month) by Marital Status

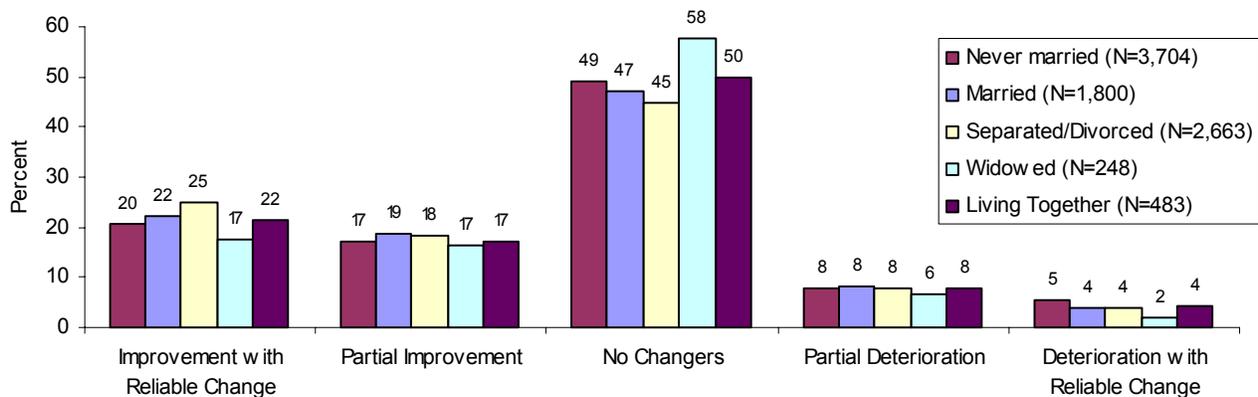


Note: Marital Status is a significant factor in multivariate analysis with change in Quality of Life as dependent variable.

Adult Consumer - QOL (Initial - 1-year) by Marital Status



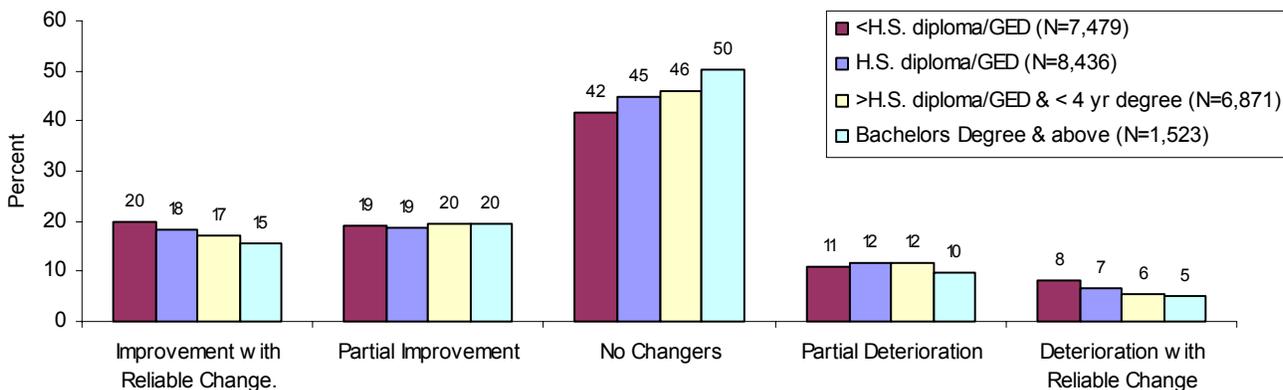
Adult Consumer - QOL (Initial - Termination) by Marital Status



Note: Marital Status is a significant factor in multivariate analysis with change in Quality of Life as dependent variable.

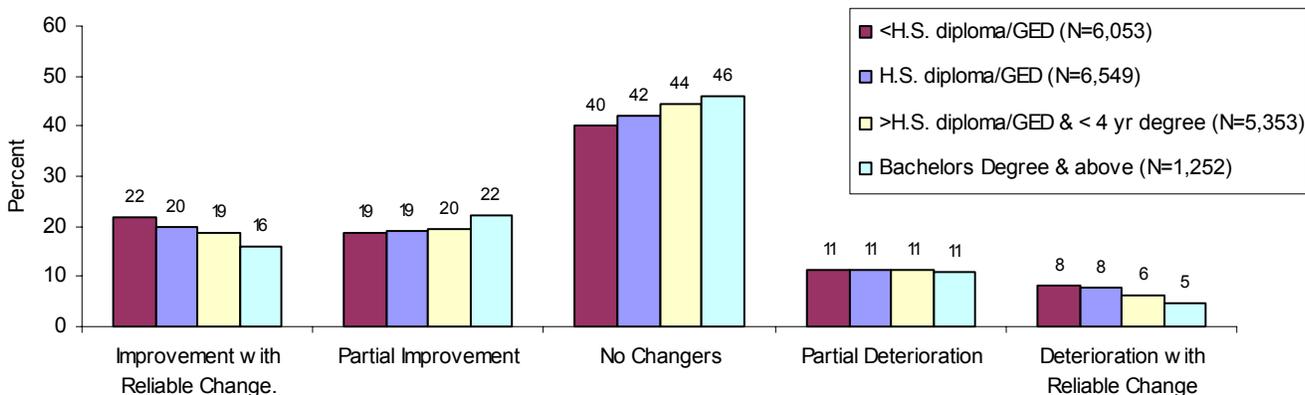
Changes in Quality of Life by Education Level

Adult Consumer - QOL (Initial - 6-month) by Education Level



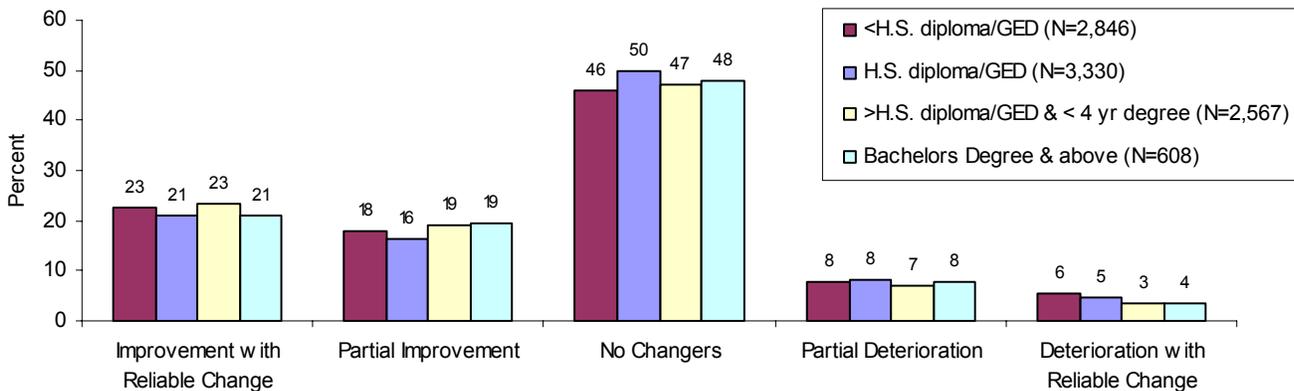
Note: Education is a significant factor in multivariate analysis with change in Quality of Life as dependent variable.

Adult Consumer - QOL (Initial - 1-year) by Education Level



Note: Education is a significant factor in multivariate analysis with change in Quality of Life as dependent variable.

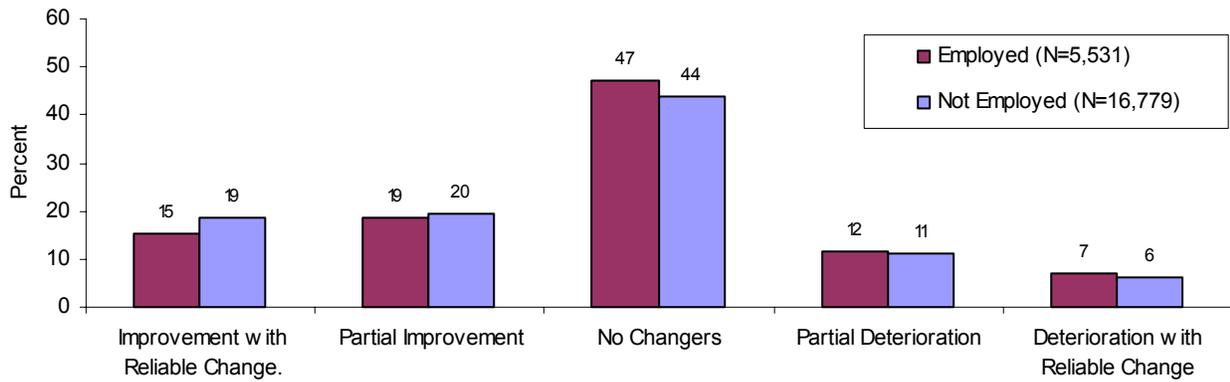
Adult Consumer - QOL (Initial - Termination) by Education Level



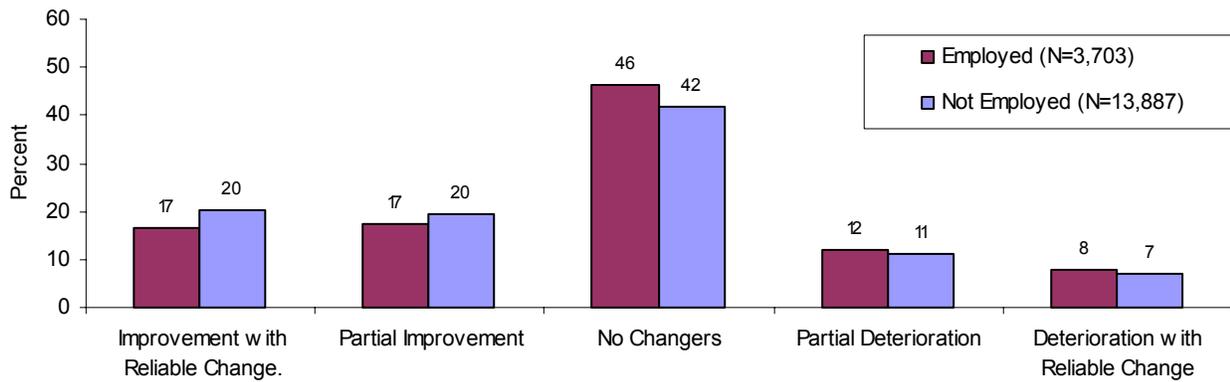
Note: Education level is a significant factor in multivariate analysis with change in Quality of Life as dependent variable.

Changes in Quality of Life by Employment Status

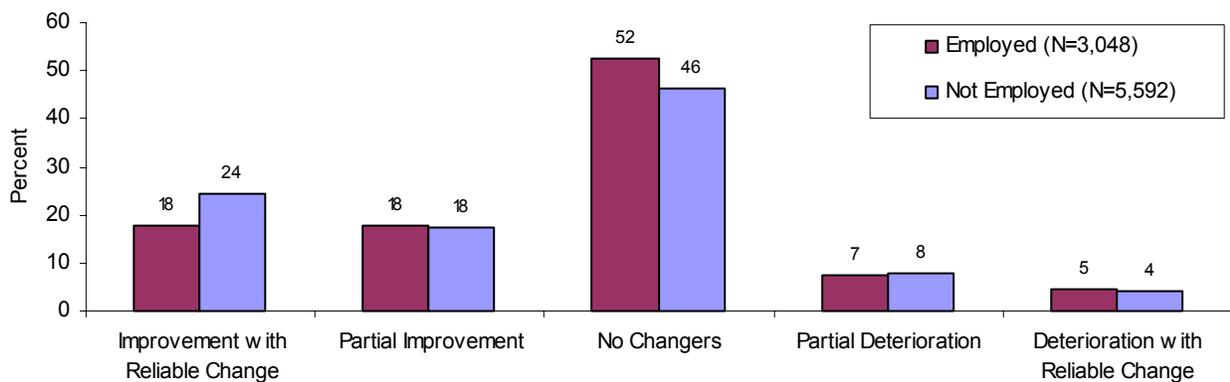
Adult Consumer - QOL (Initial - 6-month) by Employment Status



Adult Consumer - QOL (Initial - 1-year) by Employment Status



Adult Consumer - Empowerment (Initial - Termination) by Employment Status



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Appendix A—ANOVA Results Table

Table 1. Significant Factors and Covariates in ANOVA results with Changes in Symptom Distress score, Empowerment score, and Quality of Life as dependent variables respectively.

	Symptom Distress			Empowerment			Quality of Life		
	Initial to 6-month	Initial to 1-year	Initial to Termination	Initial to 6-month	Initial to 1-year	Initial to Termination	Initial to 6-month	Initial to 1-year	Initial to Termination
Gender	*	*					**	*	
Age Groups	***	***	***	*	***		**		*
Race		*						*	
Primary Diagnosis	***	***	***	*			***	**	***
County Size	*		***	*			**		**
Intake Symptom Distress Level	***	***	***	***	***	***	***	***	***
In treatment because one wants to be						**			*
Marital Status		**	**				**		**
Education Level	***	***	**				**	*	*
Employment	***	***	***	***					
Physical condition interfere with day-to-day functioning	***	***	***				**	*	
Adjusted R ²	.264	.272	.310	.021	.024	.034	.049	.056	.068
N	19,650	15,551	7,734	10,197	7,687	2,436	19,256	15,172	7,610

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: Due to large number of factors and covariates in these analyses and the limit of the computation software, only the main effects of these factors and covariates were entered into the analyses.