

Accuracy of a Home-Based Assessment of Upper Quarter Function Following Mastectomy

Christina Angelus SPT, Alyssa Benincosa SPT, Emma Grose SPT, Mary Tout SPT, Megan Burkart DPT, Anne Swisher PT, PhD, CCS, FAPTA
 Division of Physical Therapy, School of Medicine, West Virginia University, Morgantown WV, 26505

PURPOSE

Breast cancer is the most common form of cancer that affects women, and it is recognized as a major health problem in the United States. A mastectomy is a common treatment for breast cancer, but it can cause several upper quarter problems. These difficulties can include decrease in shoulder range of motion (ROM), decrease in upper extremity strength, lymphedema, pain, decrease in quality of life (QOL), and overall disability. There is a need for patients who have had a mastectomy to monitor their overall functional capacity at home, as there are few licensed oncologic certified specialist physical therapists (PT) in the United States. An at home self-assessment kit will allow patients to monitor themselves for functional loss to decrease the patient load of wellness visits. This will allow more openings in the schedule for patients who are experiencing functional deficits, ensuring they get the physical therapy treatment necessary as soon as deficits are found. This study aims to determine the accuracy of a patient's ability to use an at home self-assessment kit to detect loss of upper quarter function that should warrant physical therapy intervention.

METHODS

The patient was examined by a licensed oncologic certified specialist PT and the following measures were taken using standardized and validated assessment tools: shoulder ROM, upper extremity strength, change in girth of the upper extremity, and ratings of pain, QOL, and disability. The measurements were taken in the clinic every month following the participants' mastectomies by the PT. In the clinic, ROM was measured using a goniometer, strength using rate of perceived exertion (RPE) lifting a gallon of milk, girth using a tape measurer, pain with the Veteran's Pain Scale, QOL with a portion of the FACT-GOG, and disability with a portion of the QuickDASH. Measurements were also taken every month by the patient using the at home self-assessment kit, and data was collected via telephone up to six months post-mastectomy. In the kit, ROM was assessed using a reference photo, strength using rate of perceived exertion (RPE) lifting a gallon of milk, girth using pre-measured bracelet, pain with the Veteran's Pain Scale, QOL with a portion of the FACT-GOG, and disability with a portion of the QuickDASH. The values taken by the patient with the at home self-assessment kit were then compared to the values taken by the PT using standardized assessments to determine the validity of the kit.

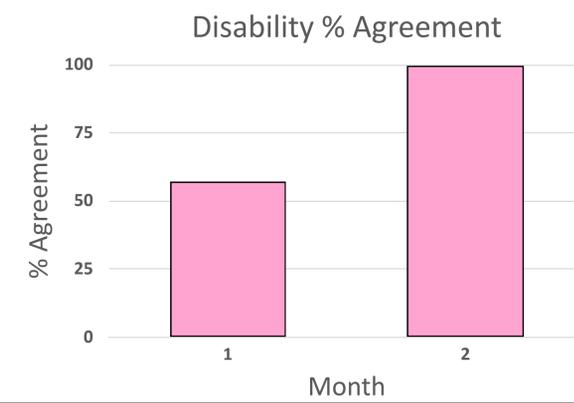
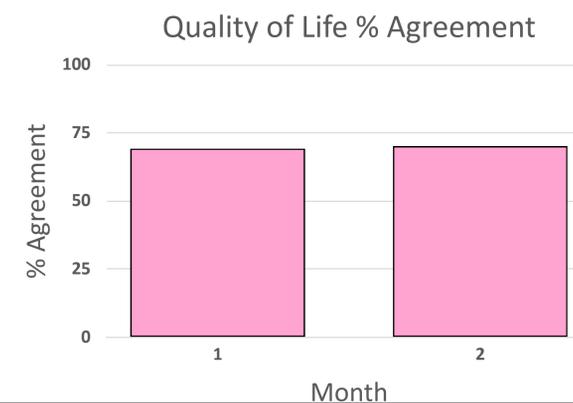
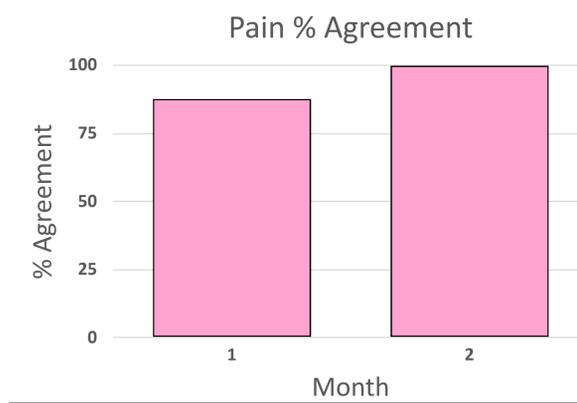
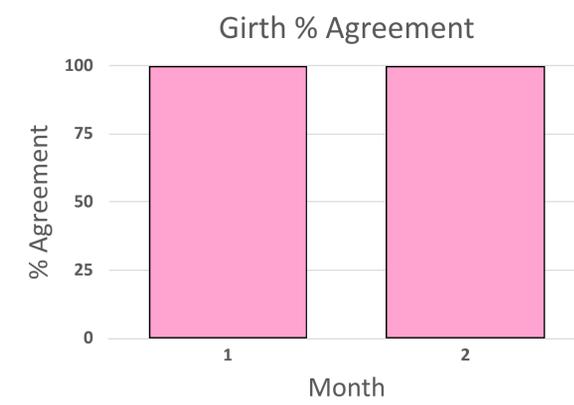
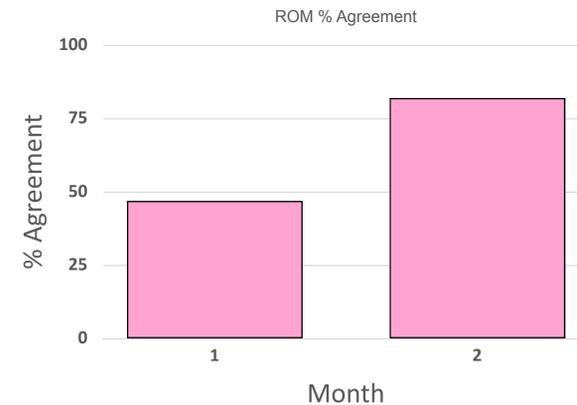
DEMOGRAPHICS

Nineteen participants were enrolled in this study. All of the nineteen participants were women, whose ages ranged from 25 to 77 years old. The mean age of the women was 50.2 years of age.

RESULTS

The percent agreement for girth was the highest. This is likely because the bracelet included in the kits was created using a tape measure, which is the instrument used by the clinician to measure girth. The bracelet is easy for the participants to use and provides an objective finding for the participant to report. The lowest percent agreement measured was RPE. The low percent agreement can likely be attributed to the fact that RPE is a subjective measurement. The participant may also perceive the amount of exertion different at different points in the day or on different days of the week.

% Agreement	Pre-Op	1 Month	2 Months	3 Months	4 Months	5 Months	Total
ROM	(n=15) 100%	(n=15) 46.67%	(n=11) 81.82%	(n=0)	(n=0)	(n=1) 100%	(n=28) 60.71%
RPE	(n=15) 100%	(n=13) 23.08%	(n=8) 100%	(n=0)	(n=0)	(n=1) 100%	(n=22) 54.55%
Girth	n/a	(n=14) 100%	(n=11) 100%	(n=1) 100%	(n=0)	(n=1) 100%	(n=27) 100%
Pain	n/a	(n=14) 85.71%	(n=11) 100%	(n=1) 100%	(n=0)	(n=1) 100%	(n=27) 92.59%
Quality of Life	n/a	(n=13) 69.23%	(n=10) 70%	(n=0)	(n=0)	(n=0)	(n=23) 69.57%
Disability	(n=15) 100%	(n=14) 57.14%	(n=10) 100%	(n=0)	(n=0)	(n=1) 100%	(n=25) 76%



CONCLUSION

The at home self-assessment kit was able to accurately assess girth, pain, and disability in patients who have had a mastectomy to treat breast cancer. However, some modifications still need to be made to the kit for the three functional deficits with the lowest percent agreements in order to accurately assess loss in function: QOL, ROM, and RPE. The kit measured with over 50% agreement for each of the six variables measured, indicating that with few modifications, the at home self-assessment kit will be able to accurately assess loss of upper extremity function.