



Short Communications

Practitioner perspectives on the implementation of the Lee Silverman Voice Treatment BIG® program

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ABSTRACT

Background: The Lee Silverman Voice Treatment BIG® (LSVT BIG®) intervention, originally designed for the patients with Parkinson's disease, is a high amplitude, high repetition therapy protocol that encourages bigger, more quality movements. The purpose of this study was to understand practitioner utilization and perspectives of the LSVT BIG® intervention as there is no published work in this area.

Methods: An electronic survey with optional debriefings was distributed to LSVT BIG® certified practitioners via the Facebook page run by parent company, LSVT Global Inc.

Results: Forty-seven practitioners engaged in this study. Practitioners were largely in the outpatient setting. Forty-seven percent reported utilizing the LSVT BIG® intervention for patient populations outside of the Parkinson's disease diagnosis. Sixty-one percent of respondents reported using the same assessment tools and ninety-five percent reported billing insurance for their services. Twenty-three percent reported offering the LSVT BIG® intervention via telehealth. Debriefings identified barriers to implementation.

Conclusion: Practitioners are implementing the LSVT BIG® intervention across settings and are most likely to be in the outpatient setting, serving patients who possess a neurological diagnosis, and focus their assessment on lower extremity, gait, and balance. When billing insurance, practitioners routinely select the three CPT® codes: Neuromuscular Re-Education, Therapeutic Activity, and Therapeutic Procedure/Exercise. Practitioners identified several barriers to implementing the LSVT BIG® program, such as the high frequency of in-clinic visits. Practitioners are currently unsystematically modifying the program to meet patient and practitioner needs. Further research should continue to explore the practitioner perspectives on implementation of the LSVT BIG® intervention.

1. Introduction

The concept known as the *research-to-practice gap* is well described in the health literature; with the estimated time for an evidence-based practice to reach the clinic being 17 years [1]. One such evidence-based intervention is the Lee Silverman Voice Treatment® (LSVT®) intervention. This intervention is comprised of two separate protocols, one delivered by speech language pathologists (LSVT LOUD®) and the other delivered by occupational and physical therapy practitioners (LSVT BIG®). The LSVT BIG® intervention, originally designed for people with Parkinson's disease (PwPD), is a high amplitude, high repetition therapy intervention that encourages bigger, high effort movements with a special focus on functional movements and gait training [2].

Current literature supporting LSVT BIG® for PwPD focuses largely on

the feasibility and efficacy of the intervention. A large body of evidence demonstrates LSVT BIG® is an effective tool in improving functional mobility, balance, functional performance in activities of daily living, upper extremity coordination and dexterity, and increased quality of life for PwPD [3–5]. Recently, researchers have explored the feasibility and preliminary clinical effect of LSVT-BIG® with other populations including progressive supranuclear palsy and stroke [6,7].

However, just because an evidence-based intervention or approach makes it to the clinical setting, uptake into clinical practice is not guaranteed. When implementing these interventions into practice, practitioners are often faced by challenges of the real world that do not exist in the research clinical setting. A crucial step in disseminating and implementing evidence-based practices is identifying facilitators and barriers of an intervention from the practitioners who are currently implementing the intervention into daily care [8]. This step is of utmost

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importance in understanding usability of a protocol or approach in the clinical setting.

There is no work explicitly investigating practitioner perspectives on implementation of the LSVT BIG® intervention. Therefore, the purpose of this study was to understand the perspectives of rehabilitation practitioners who are currently implementing the LSVT BIG® intervention in clinical practice and determine how these practitioners are applying this intervention in the clinical setting.

2. Methods

2.1. Study design

We used a mixed-methods approach to gather practitioner perspectives about the LSVT BIG® intervention. We gathered data via an electronic survey, followed by optional debriefing through semi-structured interviews. The Institutional Review Board at the University of Missouri determined this study to be exempt (#2095858).

2.2. Participants

The sample consisted of LSVT BIG® certified practitioners. Inclusion criteria for full study participation were: 1) LSVT BIG® certified and 2) understands written English. Participants were recruited via convenience sample from the “LSVT BIG® Certified Clinicians” Facebook group run by LSVT BIG® parent company, LSVT Global Inc. This Facebook group consists of roughly 3,700 certified (previous or current) occupational therapy and physical therapy practitioners. Members of the group can ask questions and share ideas for implementing LSVT BIG® in clinical practice.

2.3. Procedures and instrumentation

We distributed a link to an electronic survey within the “LSVT BIG® Certified Clinicians” Facebook group. The survey included questions regarding implementation of the LSVT BIG® intervention including populations served, assessment, payment, and delivery. For a deeper understanding of the survey results, debriefing semi-structured interviews were offered. Interview questions involved both closed and open answers. We used a phenomenological approach when developing questions in hopes to capture the participant’s lived experience implementing the LSVT BIG® intervention and the meaning of this experience to these practitioners [9].

2.4. Analysis

We employed descriptive statistics to illustrate how LSVT BIG® is delivered in current clinical practice. We analyzed the semi-structured interviews using thematic analysis.

The Zoom video-conferencing platform auto-generated debrief interview transcripts; we then checked them for accuracy with audio recordings. All interviews were de-identified. Transcripts were coded by two members of the research team using thematic analysis following the steps outlined by Braun and Clarke [10]. To begin the process, each interview transcript was independently read by both members of the team (Step 1: data familiarization). Next, both members utilized open coding to simultaneously generate codes for each interview transcript (Step 2: generating initial codes). Then, codes were organized into potential themes by each member simultaneously (Step 3: searching for themes). Themes were then refined and grouped together by likeness where appropriate based on consensus from both members (Step 4: reviewing themes). Both members then defined and named themes together (Step 5: defining and naming themes). Lastly, the identified themes and data were used to describe the current state of use of the LSVT BIG® in clinical practice (Step 6: producing the report).

Table 1

Reported non-Parkinson’s disease treatment population.

Treatment Diagnosis	Responses
Stroke	9
Parkinsonism	3
Multiple Sclerosis	3
Multiple System Atrophy	3
General Balance Deficits	2
Dementia	2
Progressive Supranuclear Palsy	1
Essential Tremor	1
Huntington’s Disease	1
Brain Injury	1
Orthopedics	1

2.5. Results

Forty-seven practitioners participated in the study at some capacity, response rate varied by question (see [Supplemental Table 1](#)). Ten practitioners identified as no longer administering the LSVT BIG® intervention ($n = 10$, $N=47$). These respondents identified lack of clientele, patient payment burden, and protocol requirements such as session duration and frequency of in-clinic visits as the largest barriers to administering the LSVT BIG® intervention.

2.6. Practice setting

Approximately 71 % ($n = 30$, $N=37$) of survey respondents identified as practicing in the outpatient setting; other settings reported (multiple settings could be selected) were skilled nursing ($n = 4$), home health ($n = 4$), long-term acute care ($n = 2$), inpatient rehabilitation ($n = 1$) and acute care ($n = 1$).

2.7. Populations served

To gauge the use of this program with populations outside of the Parkinson’s disease diagnosis, practitioners reported their experiences administering the LSVT BIG® intervention to patients without a Parkinson’s disease diagnosis. Approximately 47 % ($n = 17$, $N=36$) of respondents reported administering the LSVT BIG® intervention to patients without Parkinson’s disease. Diagnoses treated were overwhelmingly neurological (see [Table 1](#)).

2.8. Assessment

When asked about assessment tools, 61 % ($n = 22$, $N=36$) of respondents reported utilizing the same assessment or group of assessments for all patients. Ninety-six percent ($n = 25$, $N=26$) of respondents reported using specific assessments as outcome measures. Assessment tools focused mainly on gait, balance, and the lower extremities. Some reported using assessments of the upper body, cognition, and activities of daily living (see [Table 2](#)). During the debrief, respondents cited access (e.g., available from their employer) and documentation (e.g., currently integrated into their employer’s electronic health record) as influential factors in assessment selection.

2.9. Payment

Approximately 95 % ($n = 21$, $N=22$) of respondents reported billing insurance for their services. When billing insurance, practitioners utilized Current Procedural Terminology, or CPT® codes. Neuromuscular Re-Education, Therapeutic Activity, and Therapeutic Procedure/Exercise were the most frequently billed CPT® codes (see [Supplemental Table 1](#)). Twenty-three percent ($n = 5$, $N=22$) reported accepting self-pay for therapy services.

Table 2
Reported assessments utilized by LSVT-BIG® practitioners.

Domain	Assessment
Cognition	Allen Cognitive Level Screen Montreal Cognitive Assessment (MoCA) Cognitive Reflection Test (CRT)
Upper Extremity	Nine Hole Peg Test Jebsen Taylor Hand Function Test Grip and Pinch Modified Purdue Pegboard Box and Blocks Functional Reach
Activities of Daily Living	Modified Barthel Index for Activities of Daily Living Patient Specific Functional Scale
Lower Extremity, Gait & Balance	Mini-BESTest: Balance Evaluation Systems Test Dynamic Gait Index (DGI) 5× Sit to Stand Timed Up and Go (TUG) (Basic, Manual, Cognitive) Functional Gait Analysis Berg Balance Test Modified Clinical Test of Sensory Interaction in Balance (CTSIB-M) Lower Extremity Function Scale (LEFS) 6-Minute Walk Test 10-Minute Walk Test Single Leg Stance Test (SLS) The Activities-specific Balance Confidence (ABC) Scale 30-Second Sit to Stand Tinetti Fulleton Advanced Balance (FAB) Scale Four Square Step Test

2.10. Delivery

Twenty-three percent ($n = 5$, $N=22$) reported offering the LSVT BIG® intervention via telehealth. Respondents provided further information on their telehealth services, stating in-clinic visits are still utilized in combination with virtual visits when administering the LSVT BIG® program via telehealth. Some practitioners reported telehealth services were mainly used during the COVID-19 pandemic and are no longer warranted.

2.11. Barriers

In seeking to understand how practitioners are utilizing the LSVT BIG® intervention in practice, barriers to the successful implementation of the LSVT BIG® intervention emerged. One practitioner reported lacking the capacity to meet protocol demands of 4-weekly, in-clinic visits without access to other certified practitioners. The patient's motivation and tolerance were also mentioned as factors impacting the ability to adhere to the 4-weekly, in-clinic visits. Some practitioners stated their practice settings routinely utilize 45-minute sessions, making the 60-minute sessions not feasible in their setting. Multiple practitioners expressed patient payment burden, such as lack of insurance coverage for frequency of visits and high co-payments as a barrier. One practitioner in the outpatient setting identified transportation challenges as a barrier; stating some patients must travel far to get to the clinic. Several practitioners mentioned unsystematically modifying the protocol, specifically by reducing the frequency of in-clinic visits, to overcome these barriers.

3. Discussion

The purpose of this study was to understand the perspectives of practitioners who are currently implementing the LSVT BIG® intervention in clinical practice and determine how these practitioners are applying this program to the clinical setting. We now have a small snapshot of how the LSVT BIG® intervention is being utilized in clinical

practice.

Despite the LSVT BIG® intervention encouraging a focus on occupations, such as activities of daily living and functional activities, few clinicians reported utilizing occupation-based measures during their assessments. The Modified Barthel Activities of Daily Living and Patient Specific Functional Scale assessments were the only reported occupation-based measures. Henderson et al., found the use of occupational-performance based measures on a patient with Parkinson's disease participating in the LSVT BIG® intervention increased subjective and objective occupational performance outcomes [11]. Further research should continue to investigate the use of occupation-based measures and the LSVT BIG® intervention.

One of the hallmarks of the LSVT BIG® intervention is the intensity of in-clinic visits. However, this aspect of the intervention was also identified as a barrier to success by practitioners in our study. Transportation to the clinic was mentioned as a reason patients may struggle with meeting the intensity of in-clinic visits. This finding is consistent with the literature as Proffitt et al., also identified transportation as a potential barrier to engagement in the LSVT BIG® intervention [7].

Both in the comments on the electronic survey and during the debriefing interviews, practitioners revealed the need for modification of the LSVT BIG® intervention to meet patient and provider needs. Practitioners most often noted modifying the program frequency by reduction of in-clinic visits. The use of and need for adaptation of evidence-based interventions by practitioners in the clinical setting is well-documented within the implementation science literature. This is not unique to the LSVT BIG® intervention. In line with our results, adaptation to the delivery of an intervention has been previously identified [12]. These barriers include staffing and resources, patient tolerance, patient motivation, payment burden, and transportation challenges. A modified LSVT BIG® program may be the answer to the implementation barriers identified in this study.

This study has a few limitations that should be considered. The first limitation is the small number of participants drawn from a convenience sample of practitioners, making for a less representative sample. Second, our study is limited by the lack of previous research available on practitioner perspectives of the LSVT BIG® intervention, limiting our baseline knowledge of this topic. Future research should continue to investigate practitioner perspectives on the LSVT BIG® intervention through larger, more generalizable samples, and continue to develop this topic in the literature.

4. Conclusion

A preliminary view of the state of implementation of the LSVT BIG® intervention in clinical practice has been established. Practitioners are implementing the LSVT BIG® intervention across settings and are most likely to be in the outpatient setting. Patient populations served primarily possess a neurological diagnosis. Assessment focuses mostly on lower extremity, gait, and balance. When billing insurance, practitioners routinely select the three CPT® codes, Neuromuscular Re-Education, Therapeutic Activity, and Therapeutic Procedure/Exercise.

Practitioners have identified several barriers to implementing the LSVT BIG® intervention including staffing and resources, patient tolerance, patient motivation, payment burden, and transportation challenges. High frequency of in-clinic visits presents as both a feasibility challenge and a contributor to high payment burden on the patient. Further research should continue to explore the practitioner perspectives on implementation and usability of the LSVT BIG® intervention and investigate the need for and development of a modified LSVT BIG® intervention.

CRedit authorship contribution statement

Leah Botkin: Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal

analysis, Data curation, Conceptualization. **Rachel Proffitt**: Writing – review & editing, Writing – original draft, Visualization, Supervision, Methodology.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.prdoa.2024.100268>.

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