Abstract:

Purpose: This article presents finding from a mixed methods study investigating leadership development of allied health practitioners within a large public healthcare organisation in Australia.

Design/methodology/approach: The South Eastern Sydney Local Health District *Allied Health Leadership Development Program* was undertaken with an allied health cohort (n=16) between May 2014 and March 2015 and comprised all-day workshops, action learning sets and individual coaching. Using experiential learning, the program tested whether practice development methods and action learning approaches developed the leadership skills of participants compared with a control group (n=17). Descriptive statistics were collected to evaluate participant and program outcomes. Leadership, workplace culture and engagement measures were analysed as part of the study.

Findings: The *Allied Health Leadership Development Program* received high ratings by participants. They reported enhanced skills in leading self and others through mechanisms such as critical reflection and facilitation, and greater confidence managing change and with engaging staff, colleagues and patients in decision-making affecting the quality and safety of healthcare. Statistically significant differences were found with transformational leadership elements, leadership outcomes, and measures of workplace culture and engagement after program completion for intervention group participants, compared with the control group.

Research implications: Results provide new empirical evidence about the effectiveness of using practice development for allied health leadership development.

Practical implications: This low-cost leadership program can be replicated by other organisations.

Originality/value: Outcomes from an allied health leadership development program have not been previously reported in the literature.

Key words: Leadership, allied health, practice development

Paper type: Research paper

INTRODUCTION

Effective clinical leadership at all levels of care is required to improve the delivery of health care services, enhance clinical teamwork and to improve safety. It is also needed to promote innovation and to produce desired leadership outcomes (Snodgrass et al., 2008, Wylie and Gallagher, 2009, Leonard and Frankel, 2012). Leadership is an essential requirement for high quality health care and is necessary for healthcare systems to manage the increasing complexities faced by health care services and to sustain change (West et al., 2015).

Enhanced clinical team work and clinical outcomes can arise from effective leadership (McAlearney, 2008). Clear leadership roles within healthcare teams is reportedly associated with aligned team objectives, better support for innovation, higher participation and a greater commitment to excellence (West et al., 2003). Strong leadership can lead to improved clinical care, better clinical practice, enhanced conflict management and shared governance (West, 2012, Cummings et al., 2010, Wong and Giallonardo, 2013).

The need for improved effectiveness and enhanced employee performance and productivity has led to extensive research on leadership styles and the outcome of leadership within healthcare organisations (West et al., 2015, Health Workforce Australia, 2012). Despite this need, leadership and leadership development of allied health professionals (AHPs) in Australia remains an area of limited investigation (Bradd et al., 2017, Brand et al., 2012, Cummings et al., 2010, Joubert et al., 2016).

AHPs are healthcare professionals who apply their knowledge and skills to maximise and improve a client's functioning in physical, psychological, sensory and social arenas (Lowe et al., 2007, Wagner et al., 2009). They are tertiary qualified, have a range of specific skills and competencies and play an important role in clinical health care delivery across the continuum of healthcare (Mueller and Neads, 2005, Wylie and Gallagher, 2009).

The study was undertaken in South Eastern Sydney Local Health District (SESLHD) which is a large publicly-funded healthcare organisation that services a population of almost 900,000 people in the Sydney metropolitan area of New South Wales (NSW), Australia (SESLHD, 2012). AHP disciplines employed by SESLHD include counselling, dietetics and nutrition,

exercise physiology, genetic counselling, occupational therapy, orthoptics, pharmacy, physiotherapy, podiatry, psychology, social work and speech pathology. Although typically considered AHPs, the medical radiation science disciplines of diagnostic radiography/medical imaging, nuclear medicine and radiation therapy were excluded from this study because they do not have a formal or an informal line of reporting to the Allied Health directorate in SESLHD (SESLHD, 2017).

This research involved volunteer representatives from nine allied health disciplines: dietetics, occupational therapy, orthoptics, pharmacy, physiotherapy, podiatry, psychology, social work and speech pathology.

AHPs are usually employed to provide direct patient care and have been reported to feel as though they have limited opportunity to progress upward into non-clinical areas as a result (Bender, 2005). We hypothesised therefore that AHPs who undertake leadership roles may require leadership support and development (Mak et al., 2016).

Leadership development programs aim to enhance an individual's leadership capabilities and provide an important way for both new and established leaders to receive education and training to meet their specific learning needs (McAlearney, 2005). It has been suggested that transformational leadership can be learned and developed as evidenced by a discernible set of skills and attributes that improve with practice (Firestone, 2010, Kouzes and Posner, 2007).

Practice development is an approach to health care improvement that focuses on emancipatory change leading to evidence-based health care that is person-centred (Manley et al., 2008). Leadership, it is argued, is fundamental to enabling a person-centred culture and to providing conditions where person-centred approaches can flourish (Boomer and McCormack, 2010, McCormack and McCance, 2017).

This mixed methods research study involved the design, implementation and evaluation of an allied health leadership program within a public health organisation from 2014-2015. The aim was to examine whether practice development combined with transformational leadership approaches was effective in improving AHPs ability to lead and manage change

intended to improve culture, quality and safety, ways of working, and/or person-centred care provided within their teams/units.

The study included the following two objectives:
1. To evaluate the implementation of a leadership program informed by practice development and transformational leadership theories for AHPs within a NSW public health organisation (SESLHD).
2. To determine whether the program led to enhanced leadership capability, workplace engagement and workplace culture.

The SESLHD Allied Health Leadership Development Program

The focus of this study pertained to outcomes that arose from the implementation of the *SESLHD Allied Health Leadership Development Program.* The Allied Health Leadership Development Program was conducted over a ten-month period in 2014-2015 and included three all-day workshop sessions followed by five Action Learning Sets (ALS). For half of the participants in the program, individual coaching support was also provided.

The first one-day workshop provided an introduction to leadership theory and practice development. The second workshop comprised two full days and focused on the practical development of leadership and facilitation skills. This session also further expounded practice development tools and methods.

Action Learning Sets were then introduced as part of the Allied Health Leadership Program. According to Haith (2012), action learning groups, or 'sets', meet regularly with others in order to explore solutions to real problems and decide on the action they wish to take. When doing this in the set, a number of stages are undertaken including a description of the problem; receiving contributions from others by way of questions; reflection on the discussion; deciding what action could be taken; and reflection on the action learning process (Haith, 2012).

ALSs emphasise the importance of the members of the set devising practical solutions to work-based problems themselves (Haith, 2012). In the context of the leadership development program, ALSs were seen as an avenue to help participants work through issues as well as to

practically demonstrate the use of reflection and enabling questions so they could use these approaches with the staff they supervised.

The first four ALSs sessions comprised three-hour sessions that started with a one-hour presentation on a leadership topic that was then followed by the ALS. Leadership topics were selected by the program participants and included the topics of quality improvement methods, leadership styles, critical inquiry, and project management. After the leadership presentation, participants were divided into smaller groups for the ALS. The ALS was undertaken over a 90 minute period.

The formal Allied Health Leadership Program concluded with a final three-hour session that recapped information from the initial workshops and outlined future directions, followed by the ALS. All elements of the program (the workshops and the ALS) were implemented in-house using existing personnel and resources.

As part of the study design, half of the 16 intervention group participants (n=8) received one on one coaching sessions (n=4 sessions of 60 minute) with the first author as part of the leadership program. Considered an enabler of leadership development, coaching is a solution-focused approach used to assist people to retrieve and utilise their personal experiences, skills, intuition and expertise in order to find creative, individual solution to work and personal life situations (Greene and Grant, 2003, MacKie, 2015). A collaborative process, it aims to improve performance, well-being and the ability of the individual to learn independently (Grant and Cavanagh, 2007).

The coach's role is to assist the person move through a system of goal-setting, initiating action, self-reflection and observation of performance, evaluation and goal or action modification until the goal is attained (Grant and Cavanagh, 2007). A positive practice methodology of coaching, founded in positive social constructionalist science, was used (Linley and Harrington, 2004, Linley et al., 2009, Christ, 2014).

As part of their involvement with the study, intervention group participants were required to develop, implement and evaluate a person-centred improvement project of their choosing with their team using practice development approaches. These included clinical projects,

team development projects and projects that improved local processes. Participant self-reflection through mechanisms such a journaling was also encouraged.

A celebration day was held approximately 10 months after the program commenced. At this event, participants showcased their project, shared their learnings and celebrated their graduation from the program. Examples of local improvement projects included developing a better team approach to falls prevention, partnering with patients to improve podiatry services and improving processes to prescribe and provide pressure care cushions in occupational therapy.

Theoretical frameworks for the study

This study was underpinned by two theoretical models. These were the *full-range leadership theory* (Bass and Avolio, 2004) and *practice development* (Manley et al., 2008).

Full range leadership theory

Developed by Bass and Avolio, the full-range leadership theory is widely utilised in leadership research (Cummings et al., 2010, Muenjohn and Armstrong, 2008, Bass and Avolio, 2004). It describes three types of leadership behaviour: transformational; transactional; and laissez-faire leadership. These are delineated into nine elements of leadership. These nine elements, along with three outcomes of leadership, have been assessed internationally using the Multifactor Leadership Questionnaire (MLQ) (Form 5x) (Antonakis et al., 2003, Casida and Parker, 2011). The MLQ (Form 5X) has 45 items, 36 of which represent the nine leadership factors and nine items which evaluate the three leadership outcome scales (Antonakis et al., 2003, Bass and Avolio, 2004).

Transformational leadership, as defined by Bass and Avolio (2004), is a collaborative approach where leaders elevate levels of motivation in order to raise performance to a higher level. It is characterised by a leader who supports their followers to achieve greater levels of commitment, dedication, productivity and motivation within a collaborative environment (Bass and Avolio, 2004). In this process, the motives of the leader and the follower transform and align (Miller and Gallicchio, 2007).

In the MLQ, transformational leadership is assessed by five elements. The first element is *Idealised Influence (Attributed)* which assesses how well the leader manages crises, shows self-confidence and makes personal investments in leadership. The second element is *Idealised Influence (Behaviour)*. This element evaluates the degree to which a leader is believed to acts as a role model by showing important values, beliefs and purpose and by creating a common vision. The third element is *Inspirational Motivation*. This assesses the leader's standards and future orientation and evaluates how well a leader communicates expectations and provides work which is challenging and has meaning for followers. *Intellectual Stimulation* is the fourth element. It measures the degree to which new ideas are accepted and the status quo is challenged. The final element, *Individualised Consideration*, evaluates the level of which an individualised approach is taken by the leader (Kanste et al., 2006, Muenjohn and Armstrong, 2008).

Transactional leadership is where the relationships among clinicians is founded on a transactional exchange of resources (Miller and Gallicchio, 2007). In the MLQ, transactional leadership elements include *Contingent Reward* which measures the extent to which a leader provides reward contingent on a person's behaviour, *Management By Exception (Active)* which evaluates the level to which a leader actively looks for mistakes and *Management By Exception (Passive)* which assesses the degree to which a leader fails to become involved unless there is a perceived problem (Kanste et al., 2006).

Laissez-faire leadership is defined as an absence of leadership. It is characterised by a lack of clarification, conflict avoidance and lack of decision making (Muenjohn and Armstrong, 2008).

Leadership Outcomes have a high correlation with transformational leadership and are said to be related with leadership success (Muenjohn and Armstrong, 2008). In the MLQ, three leadership outcomes are assessed - extra effort, effectiveness and satisfaction (Bass and Avolio, 2004).

Practice development
Practice development is a facilitated process that aims to promote person-centred and evidence-based health care and flourishing workplaces through authentic engagement with

individuals and teams. The practice development process embraces clinical practice skills and wisdom as well as creativity, imagination and personal strengths. It is said to lead to the transforming of individual and team practices and is sustained by its' processes and outcomes being embedded in corporate strategy (Manley et al., 2008). Facilitation is a key tenet of successful practice development (Manley et al., 2008) with facilitation defined as 'a technique by which one person makes things easier for others' (Kitson et al., 1998, p.152).

For many people in the practice development field, Fay's critical social science provides the theoretical underpinnings of practice development (Boomer and McCormack, 2010, Garbett and McCormack, 2002, Shaw, 2013, Fay, 1987). Critical social theory originated in Germany and inspired the work of Habermas who reportedly influenced the application of the critical social theory approach within nursing (Parlour and McCormack, 2012). Habermas described technical, practical and emancipatory areas of knowledge each arising to address a different need (Fleming and Moloney, 1996). Habermas' work was reflected in the foundational work within nursing by Fay who asserted that the intention of critical social science was to 'enable emancipation through enlightenment and empowerment' (Boomer and McCormack, 2010, p.634, Fay, 1987).

The application of practice development in clinical settings reflects the tenets of critical social science. It is achieved through the use of specific practice development methods such as clarifying values, reflection, action learning, high challenge with support and critical inquiry (Shaw, 2013, Boomer and McCormack, 2010).

The two theoretical approaches of transformational leadership and practice development were used to develop a leadership framework for allied health professionals. This framework informed the design of the SESLHD Allied Health Leadership Development Program.

METHOD

This study aimed to evaluate an approach to leadership development of AHPs using the SESLHD Allied Health Leadership Development Program. The program was delivered from May 2014 to March 2015.

Research participants

Participants included in the study were employees of SESLHD who were: allied health clinicians; willing to participate in research; either led an allied health team, supervised others or wished to pursue a more senior allied health role; and who had the support of their operational manager to participate in the program. Participants in the study voluntarily self-nominated to be involved with the research. The number of volunteers who met the study criteria therefore determined the sample size of the study.

Once identified as meeting study inclusion criteria and having returned a signed participant consent form, participants (n=33) were assigned a study enrolment number. Initial subject allocation to the control group and to the intervention group (A and B) was randomised by a person external to the study using a stratified randomisation approach. Randomisation was undertaken by drawing the coded names from an envelope in the presence of an independent witness. The study enrolment number denoted the site and discipline of the participant, which enabled the randomisation process to be stratified to balance sites and disciplines across the control and the intervention groups. For example, if there were four occupational therapists from one hospital nominated for the project, two would be randomised to the control group and two would be randomised to the intervention group. Participants from a site or discipline where there were uneven numbers or single nominations were randomly allocated to the two groups in a 1:1 ratio.

The stratified randomisation process resulted in subjects being allocated to one of two main groups: 17 of the subjects were randomised into a study control group and 16 subjects into an intervention group (A and B). The intervention group was further split into two groups – A and B. Intervention Group A were those who did not receive individual coaching as part of their program (n=8) and Intervention Group B were those who did receive individual coaching as part of the program (n=8).

Participants were notified of the outcome of the randomisation process in March 2014 and sent two questionnaires to complete. All study participants were asked to complete the pre-program surveys prior to the formal program commencement in May 2014.

Ethics

Ethics approval for this study was obtained from both University and South Eastern Sydney Local Health District Human Research Ethics Committees (HREC 14_005 and ETH17-1497).

Written information about the project was provided to each potential study participant and, as noted, signed consent was obtained from all personnel who participated in this study. Prior to consent being obtained, the first author met with each potential individual study participant to outline the study design, their role and the likely time commitment.

Setting and study sample

SESLHD is a large metropolitan public healthcare organisation in Sydney, Australia. It comprises nine local government areas from Sydney's Central Business District to the Royal National Park in Sydney's South and, at the time of the study, there were approximately 1200 employees classified as allied health (excluding medical radiation science personnel). It has seven public hospitals, including five major referral and metropolitan hospitals, a number of specialist state-wide services and over 50 community facilities (SESLHD, 2012).

Baseline Measures

Baseline data were received from study participants (n=33) in April-May 2014. This comprised data from the control group (n=17) and the intervention group (n=16). Data were collected from all study participants prior to the formal commencement of the program in May 2014.

Instruments:

Participants were sent two online baseline surveys to complete as part of the study, as described below.

Survey 1:

An online survey instrument was developed specifically by the first author for the purpose of the study. It targeted three areas of focus: subject demographics, workplace culture and workplace engagement.

Standard demographic characteristics about participants were gathered using the survey. Elements included their current role; qualifications; professional grading; gender; previous leadership training; time in their current position and the number of personnel they supervised / managed. To determine the current context of allied health involvement with quality improvement, as well as whether the program influenced the number of quality improvement activities undertaken, this research sought to review allied health clinician involvement with quality improvement activities. Information was thus also gathered about their involvement with local quality improvement activities, such as ward-based quality projects.

To evaluate workplace culture, participants were asked to provide a response using a Likert scale rating (strongly disagree (0) to strongly agree (4)) to 20 questions. Several questions were adapted from the *Prince of Wales Hospital Nurse Engagement Survey* (Johnson, 2010). Of the 20, five questions were about their current role, 10 questions were about person-centred approaches and five questions related to a culture of quality and safety. Questions are listed in Table 1.

Category	Question
About their job	My job gives me a lot of satisfaction.
About their job	My job is very meaningful to me.
About their job	I feel enthusiastic about my present work.
About their job	My work gives me an opportunity to utilise all my skills.
About their job	I feel able to successfully overcome the challenges of change
Person-centred care	My team provides quality patient care
Person-centred care	My team provides timely patient care
Person-centred care	I spend time thinking ahead to improve our clinical services
Person-centred care	Clients and their families are fully involved in determining their care.
Person-centred care	I make suggestions to patients which improve their longer-term recovery and health
Person-centred care	I anticipate what the patient and their family might need to know and communicate this to them

Person-centred care	Patient input is integrated into their treatment plans
Person-centred care	I have used patient stories to inform clinical practice
Person-centred care	I try to see things from the patients view point
Person-centred care	I try to think about how I would feel in the patient's situation
Quality and safety	The quality of patient care in my team is as good as it could be.
Quality and safety	There is strong teamwork in my service.
Quality and safety	Near-misses are always followed up.
Quality and safety	Quality is a high priority for my team.
Quality and safety	I regularly undertake quality activities

Table 1: Survey 1 questions: Workplace culture

Workplace engagement was measured using The Utrecht Workplace Engagement Scale (UWES) (Schaufeli and Bakker, 2004). The UWES is a validated workplace engagement tool comprising 17 questions examining three elements of workplace engagement – vigour, dedication and absorption.

Survey 2:

The second online survey comprised questions from the MLQ (5x-Short), a validated tool of leadership used extensively in the literature to measure leadership (Bass and Avolio, 2004, Bass et al., 2003, Kanste et al., 2006). The MLQ is a 45-item self-reported questionnaire designed to measure nine subscales of leadership. It is multidimensional and uses a 360-degree evaluation to ascertain the views of managers, peers and subordinates, as well as self-report (Kanste et al., 2006).

The MLQ is reported to have a high degree of internal consistency and validity (Antonakis et al., 2003, Bass & Avolio, 2004, Avolio et al., 1999). Results of a study examining the MLQ found that the MLQ (5X-Short) was valid and reliable and could adequately measure the nine components of the full range theory of leadership (Antonakis et al., 2003). In evaluating the psychometric qualities of the MLQ with nurses, the MLQ was found to be a reliable instrument in relation to internal consistency and stability among nursing personnel (Kanste et al., 2006).

Participants undertook a leadership self-assessment using the individual leader survey MLQ (Form 5X) (Bass and Avolio, 2004), which was used as the individuals' baseline. The MLQ was used, collected, scored and administered in accordance with all stipulated administration guidelines (Bass & Avolio, 2004).

A rater version of the MLQ was also sent to others to rate the individual study participants in each of the control and intervention groups. Other raters were all from the same organisation as participants and included a more senior, a more junior and a peer worker. At least two external ratings were received for each participant in the study, one of which was the person's line manager. A total of 85 surveys was received by other raters at baseline.

Other measures

Written questionnaires developed for the study were completed by intervention group participants immediately after each of the three workshop days and five ALS sessions. Using these, participants rated elements of the sessions, their confidence in specific activities (such as facilitation and asking enabling questions) and described key learnings. Feedback from the questionnaires was used to shape subsequent sessions. A detailed questionnaire was completed at the final ALS. This provided overall ratings and feedback in relation to elements of the program.

Intervention Measures

Study participants were randomised into the study control group or the intervention group (A and B), as depicted in Figure 1. A short description of each group follows.
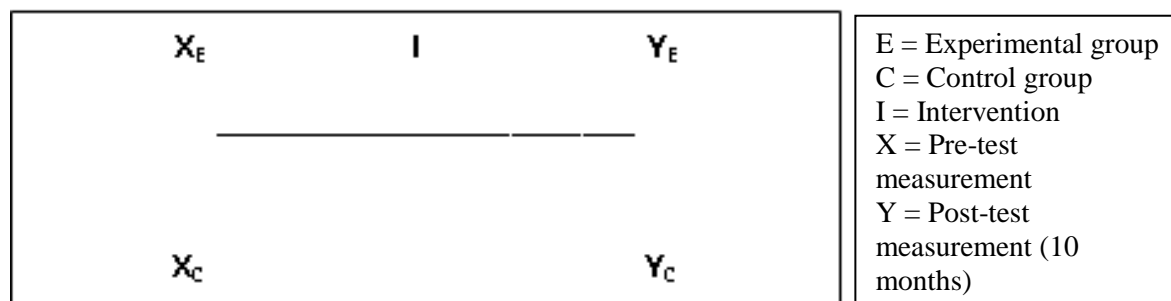

Figure 1: Intervention - Control group design

Control Group: Usual practice / no additional intervention: This group completed pre- and post-program measures. They did not undertake the leadership program and did not participate in the ALS. (Note, control group participants were invited to undertake the program in the following year).

Intervention Group A: Participants involved in the leadership program: This group completed pre- and post-program measures in relation to their leadership skills. They undertook the leadership program and participated in the ALS.

Intervention Group B: Participants involved in the leadership program plus coaching: Participants undertook the leadership program and ALS as per Group A. In addition, the leader was provided with individual leadership coaching sessions (n=4) with the first author as part of their program. A schema of the research methodology is illustrated in Figure 2.
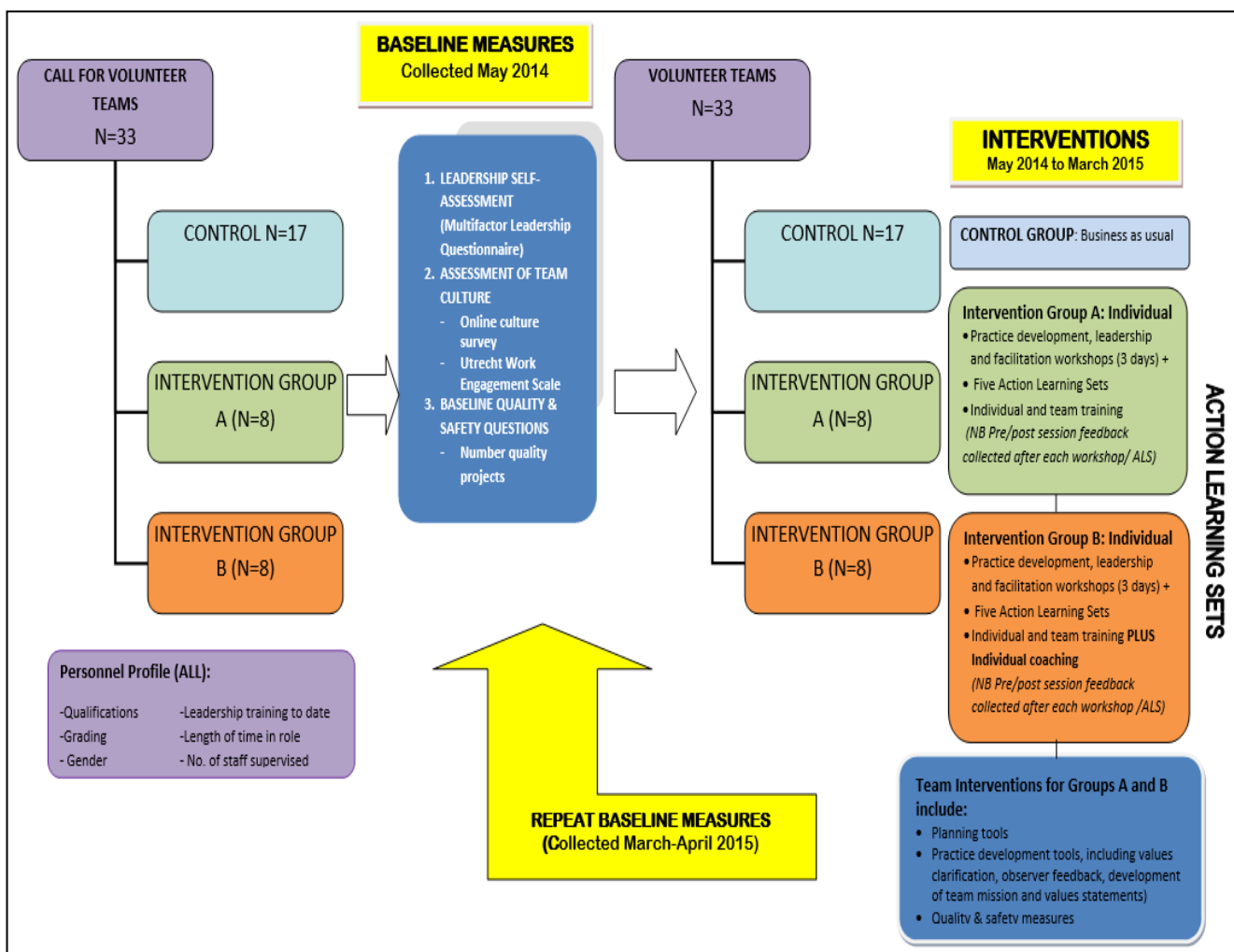

Figure 2: Schematic illustration of research methodology

Repeat Baseline Measures

The final phase of the study saw the repeat collection of measures from participants and teams in relation to leadership, culture, and engagement. Repeat data collection occurred in March and April 2015, 10 to 11 months after initial baseline data collection.

Three people withdrew from the study; two from intervention group and one from the control group. Two people left due to maternity leave and the other person left the study as they had obtained a new position external to the organisation. Data from these personnel were excluded from analysis.

Repeat baseline measures were collected from 100 percent of research participants, including 16 members of the control group and 14 members of the intervention group. There were 68 MLQ other rater surveys also collected from managers, peers and subordinates. There was an average of two external raters per participant, one of which was the person's manager.

Data Analysis

Program evaluation was undertaken using a mixed methods approach. Research using mixed methods has been described as involving the collection, analysis and mixing of quantitative and qualitative approaches in a study (Creswell et al., 2006).

For those in the intervention group, qualitative data were collected using questionnaires after each workshop and ALS. Qualitative data analysis was also undertaken using demographic information collected from all research participants (control and intervention groups) before and after the program. Other outputs, such as completion of a person-centred project and related workplace and clinical outcomes, were also collected as part of findings. Thematic analysis was assisted by using NVivo 10 software (QSR International, 2012).

Quantitative data were analysed using data collected from all research participants (control and intervention groups) before and after the program. Data collected through Survey 1 and Survey 2 as part of the program were analysed using the non-parametric Wilcoxon signed-rank test for within group data analysis and using the Kruskal-Wallis Test and the Mann-Whitney U Test for between group analyses. This was undertaken using the Statistical

Package for the Social Sciences (SPSS) version 21.0 (SPSS, 2012). All of the statistical tests were undertaken at the 5% significance level.

This paper presents data analysis from the intervention groups A and B as one combined group in comparison to the control group. This is due to the small overall sample size and also because the numbers and participants were stratified across the two primary cohorts – control and intervention groups. More in-depth data analysis and specific findings from the participants who received coaching compared with those who did not is reported elsewhere (Bradd, 2018).

Summary of Program Design

As described, the SESLHD Allied Health Leadership Development Program included workshops and ALS scheduled over a ten-month period. These were attended in person.

The Allied Health Leadership Development Program is summarised as followed:
- Session 1: Introduction to leadership theory and practice development (one-day workshop session).
- Session 2: Development of leadership and facilitation skills. Introduction to practice development tools and methods (two-day workshop session).
- Sessions 3-7: Leadership topics (subjects based on needs identified from the group) followed by action learning set. Topics included leadership styles, critical inquiry, improvement science, and project management (four three-hour action learning set sessions).
- Session 8: Evaluation and future directions plus action learning set (one three-hour session).

Individual coaching sessions (n=4) were provided from June-November 2014 for half of program participants in the intervention group.

Program Resources

The leadership program utilised existing resources within SESLHD and there were no substantial expenses other than personnel time to conduct and to attend the program.

RESULTS

Descriptive Statistics

Descriptive statistics were collected to evaluate participant and program outcomes.

Characteristics of allied health participants across the control and the intervention groups

Most participants in the control and the intervention groups were female with each of the groups having one male participant. Age demographics across both groups show a similar spread in ages although there were two additional 30-39 years olds in the control group.

Due to the stratified randomisation process, there were comparable numbers of people per site and per discipline represented in each of the control and the intervention groups. Years of experience in their jobs and professional gradings (reflecting a person's organisational seniority) were also similar across groups. The characteristics of participants in the control and intervention groups are detailed in Table 2.

VARIABLE	Control Group (n=16)	Intervention Group (A&B) (n=14)
Gender		
Male	1	1
Female	15	13
Age (years)		
- 20-29 years	5	5
- 30-39 years	5	3
- 40-49 years	6	6
Site		
Sutherland Hospital	3	1
St George Hospital	4	2
Calvary Healthcare	2	2
Prince of Wales Hospital	6	6
Sydney-Sydney Eye Hospital	0	1
War Memorial Hospital	1	1
Albion Street Centre	0	1
Professional discipline		
- Occupational therapy	4	4
- Physiotherapy	3	2
- Social work	3	2
- Speech pathology	2	1
- Dietetics	2	1
- Podiatry	1	1

- Orthoptics	0	1
- Psychology	0	1
- Pharmacy	1	1
Professional Grading		
- Level 2 (base grade)	2	1
- Level 3 or 4	13	12
- Level 6 or above	1	1
Job experience (years)		
- Up to 5 years	4	4
- 6-10 years	4	4
- 10-20 years	6	5
- 20-30 years	2	1

Table 2: Characteristics of allied health participants per group (control and intervention)

Qualitative Measures

Qualitative evaluation showed that the SESLHD Allied Health Leadership Development Program was very well received by intervention group participants, with all participants rating the program as "Very Good" or "Excellent" on a five-point Likert scale. Participants reported enhanced skills in leading self and others through mechanisms such as critical reflection and facilitation and all participants reported the program benefitted their development as a leader. When evaluating the session after each of the workshop and ALS, all participants (100%) "Agreed" or "Strongly Agreed" on a five point Likert scale that the sessions were of high quality, relevant and interesting.

Overall, participants rated the ALS, networking and the opportunity to develop leadership through effective facilitation most highly. Themed feedback indicated that the allied health participants valued an allied health specific leadership program and related well to the person-centred principles and approaches used in practice development.

Participant feedback suggested that experiential learning was powerful for program participants. Applied learning and reflection through the ALS and the functional workplace project were reported to assist participants to use program theory and practice development methods, such as facilitation, in functional ways. Participants reported that the program was practical, with strategies, tools and ideas that could be implemented in the workplace after each session.

Participants also reported high levels of trust, safety and engagement within the group, which enabled them to explore and test new ideas and approaches. They stated that the experiential and supportive learning from the program led to greater confidence managing change and with engaging their staff, colleagues and patients in decision-making affecting the quality and safety of care.

Participants described how their clinical practice had changed to be more focused on empowering patients in decisions affecting their care. They also described how the program enhanced the way they interacted with their teams. For example, one participant reported that they now saw leadership as "*creating an environment that supports your team in being engaged to solve problems and collaboratively engage in change and the process of change*" [Participant 4].

A number of participants reported that they became more visible as a leader, with one person reporting "*Others approach me more as a leader - they seem to have more confidence in me and what I can offer in terms of making important decisions*" [Participant 6].

Those who received coaching reported significant benefit and value to having access to individualised support, in particular it enabled them to develop greater self-efficacy in their leadership role and to embed strategies to maintain and develop awareness and self-care as leaders.

A qualitative finding from the study was an increase in leadership confidence as self-reported by participants via the questionnaires. Sixty-four percent of participants (n=9 of 14) reported that they were more confident as leaders when asked the question "*In what way has your learning affected you most?*" What not a formal research measure, repeat demographic data collection also showed that 57% (n=8 of 14) of program participants attained more senior (promotional) allied health positions following the program, compared with 6% of control group members (n=1 of 16). This finding suggests that increased leadership confidence enabled some program members to successfully apply for more senior positions.

In analysing the number of quality programs undertaken at baseline (58 for the control group; 46 for the intervention group) compared with the number at repeat data collection (46 for the

control group; 53 for the intervention group), program participants also appeared more likely than those in the control group to commence and complete quality activities following the program. However, this difference was comparatively small and this area requires further investigation.

Quantitative Measures

The study utilised a rigorous randomised control trial method for the quantitative evaluation of the allied health leadership program. This novel approach has not been previously described in the allied health literature (Bradd et al, 2017). Descriptive statistics were used to evaluate pre and post program differences *between* the control and intervention groups as well as the differences *within* each group over time.

Results are organised as followed:

- Table 3 – Workplace Culture Ratings (Control and intervention group comparisons and within group comparisons)
- Tables 4 – Workplace Engagement Ratings (UWES) (Control and intervention group comparisons and within group comparisons)
- Table 5 – MLQ Self-Rating (Control and intervention group comparison)
- Table 6 – MLQ Self-rating (Within group comparison)
- Table 7 – MLQ Other Rating (Control and intervention group comparison)
- Table 8 – MLQ Other rating (Within group comparison))
- Table 9 - Intervention group self-report of levels of knowledge – Workshops
- Table 10 - Intervention group self-report of levels of confidence – ALS

All levels of significance were calculated using SPSS. Significance levels for all measures were set at 5%.

Control and intervention group comparisons and within group comparisons from Tables 3 to 8 will now be discussed, followed by a descriptor of intervention group results from Tables 9 and 10.

Control and intervention group comparison	Control Group Median: *Baseline*	Interv. Group Median: *Baseline*	Intervention Group versus Control Group – Self rating *Difference at Baseline (p-value)*	Control Group Median: *Repeat*	Interv. Group Median: *Repeat*	Intervention Group versus Control Group – Self rating *Difference at Repeat (p-value)*
Workplace Culture						
About their job	3.22	3.27	0.545	3.03	3.61	0.00
Person-centredness	3.35	3.08	0.045	3.25	3.38	0.006
Quality and safety	2.88	3.08	0.299	2.88	3.14	0.014
OVERALL	3.19	3.12	0.539	3.03	3.38	0.00
Within group comparison	Control Group Median: *Baseline*	Control Group Median: *Repeat*	Control Group versus Control Group – Self rating *Difference Baseline and Repeat Measures (p-value)*	Interv. Group Median: *Baseline*	Interv. Group Median: *Repeat*	Intervention Group versus Intervention Group – Self rating *Difference Baseline and Repeat Measures (p-value)*
Workplace Culture						
About their job	3.22	3.03	0.04#	3.27	3.61	0.001*
Person-centredness	3.35	3.25	0.04#	3.08	3.38	0.00*
Quality and safety	2.88	2.88	0.83	3.08	3.14	0.29
OVERALL	3.19	3.03	0.005#	3.12	3.38	0.00*

Table 3: Workplace Culture - Summary of comparison control and intervention group's and within group comparison statistical data

UWES: Control and intervention group comparison	Control Group Median: *Baseline*	Interv. Group Median: *Baseline*	Intervention Group versus Control Group – Self rating *Difference at Baseline (p-value)*	Control Group Median: *Repeat*	Interv. Group Median: *Repeat*	Intervention Group versus Control Group – Self rating *Difference at Repeat (p-value)*
UWES						
Vigour	4.41	4.16	0.07	4.25	4.71	0.05
Dedication	4.5	4.4	0.302	4.6	5.2	0.08
Absorption	4.5	3.79	0.02	4.12	4.67	0.23
OVERALL	4.5	4.33	0.025	4.33	4.81	0.015
UWES: Within group comparison	Control Group Median: *Baseline*	Control Group Median: *Repeat*	Control Group versus Control Group – Self rating *Difference Baseline and Repeat Measures (p-value)*	Interv. Group Median: *Baseline*	Interv. Group Median: *Repeat*	Intervention Group versus Intervention Group – Self rating *Difference Baseline and Repeat Measures (p-value)*
UWES						
Vigour	4.41	4.25	0.18	4.16	4.71	0.006*
Dedication	4.5	4.6	0.75	4.4	5.2	0.022*
Absorption	4.5	4.12	0.21	3.79	4.67	0.021*
OVERALL	4.5	4.33	0.21	4.33	4.81	0.00*

Table 4: Workplace Engagement (UWES) - - Summary of comparison control and intervention group's and within group comparison statistical data

MLQ SELF RATINGS: Control and intervention group comparison	Control Group Median: *Baseline*	Interv. Group Median: *Baseline*	Intervention Group versus Control Group – Self rating *Difference at Baseline (p-value)*	Control Group Median: *Repeat*	Interv. Group Median: *Repeat*	Intervention Group versus Control Group – Self rating *Difference at Repeat (p-value)*
MLQ (5X-Short)						
Transformational Leadership elements						
Idealised Influence (Attributed)	2.58	2.75	0.49	2.75	2.88	0.11
Idealised Influence (Behaviour)	2.75	2.5	0.12	2.88	3.25	0.02
Inspirational Motivation	2.75	2.63	0.31	3	3.13	0.17
Intellectual Stimulation	2.75	3.13	0.38	2.75	3.13	0.03
Individualised Consideration	3	3.34	0.22	3.13	3.5	0.002
Transactional Leadership elements						
Contingent Reward	2.5	2.88	0.23	3	3.25	0.13
Management By Exception (Active)	1.88	2.13	0.26	1.5	1.88	0.07
Management By Exception (Passive)	0.88	0.88	0.42	0.63	0.63	0.17
Laissez-faire Leadership	0.5	0.63	0.26	0.38	0.5	0.31
Leadership Outcomes:						
Extra Effort	2.33	2	0.12	2.33	2.83	0.014
Effectiveness	2.75	2.88	0.34	3	3	0.04
Satisfaction	2.75	3	0.12	2.75	3.5	0.002

Table 5: MLQ Leader Self- rating - Summary of comparison control and intervention group's statistical data

OTHER RATERS – MLQ Control and intervention group comparison	Control Group Median: *Baseline*	Interv. Group Median: *Baseline*	Intervention Group versus Control Group – Other raters *Difference at Baseline (p-value)*	Control Group Median: *Repeat*	Interv. Group Median: *Repeat*	Intervention Group versus Control Group – Other raters *Difference at Repeat (p-value)*
MLQ (5X-Short)						
Transformational Leadership elements						
Idealised Influence (Attributed)	3.35	2.88	0.02	3.08	3.25	0.44
Idealised Influence (Behaviour)	2.71	2.75	0.20	2.94	3.02	0.28
Inspirational Motivation	3.17	2.92	0.18	3.04	3.25	0.20
Intellectual Stimulation	2.96	2.94	0.33	2.75	3	0.33
Individualised Consideration	3.07	3.25	0.46	2.94	2.97	0.42
Transactional Leadership elements						
Contingent Reward	3.25	3.08	0.36	3.06	3.08	0.44
Management By Exception (Active)	1.75	1.83	0.35	1.75	1.78	0.17
Management By Exception (Passive)	0.54	0.58	0.27	0.54	0.67	0.42
Laissez-faire Leadership	0.33	0.33	0.38	0.46	0.34	0.08
Leadership Outcomes:						
Extra Effort	2.83	3	0.26	2.94	2.89	0.27
Effectiveness	3.52	3.65	0.36	3.29	3.29	0.47
Satisfaction	3.42	3.67	0.19	3	3.5	0.09

Table 6: Other raters (managers, peers, subordinates) MLQ - Summary of comparison control and intervention group's statistical data

MLQ SELF RATINGS Within group comparison	Control Group Median: *Baseline*	Control Group Median: *Repeat*	Control Group versus Control Group – Self rating *Difference Baseline and Repeat Measures (p-value)*	Interv. Group Median: *Baseline*	Interv. Group Median: *Repeat*	Intervention Group versus Intervention Group – Self rating *Difference Baseline and Repeat Measures (p-value)*
MLQ (5X-Short)						
Transformational Leadership elements						
Idealised Influence (Attributed)	2.58	2.75	0.59	2.75	2.88	0.12
Idealised Influence (Behaviour)	2.75	2.88	0.59	2.5	3.25	0.004*
Inspirational Motivation	2.75	3	0.66	2.63	3.13	0.021*
Intellectual Stimulation	2.75	2.75	0.75	3.13	3.13	0.14
Individualised Consideration	3	3.13	0.56	3.34	3.5	0.046*
Transactional Leadership elements						
Contingent Reward	2.5	3	0.14	2.88	3.25	0.08
Management By Exception (Active)	1.88	1.5	0.22	2.13	1.88	0.81
Management By Exception (Passive)	0.88	0.63	0.48	0.88	0.63	0.10
Laissez-faire Leadership	0.5	0.38	0.20	0.63	0.5	0.47
Leadership Outcomes:						
Extra Effort	2.33	2.33	0.39	2	2.83	0.001*
Effectiveness	2.75	3	0.30	2.88	3	0.017*
Satisfaction	2.75	2.75	0.42	3	3.5	0.015*

Table 7: MLQ Leader Self- rating - Summary of within group comparison statistical data *= higher median score; #= lower median score

OTHER RATERS – MLQ Within group comparison	Control Group Median: *Baseline*	Control Group Median: *Repeat*	Control Group versus Control Group – Other raters *Difference (p-value)*	Interv. Group Median: *Baseline*	Interv. Group Median: *Repeat*	Intervention Group versus Intervention Group – Other raters *Difference (p-value)*
MLQ (5X-Short)						
Transformational Leadership elements						
Idealised Influence (Attributed)	3.35	3.08	0.02#	2.88	3.25	0.45
Idealised Influence (Behaviour)	2.71	2.94	0.80	2.75	3.02	0.10
Inspirational Motivation	3.17	3.04	0.04#	2.92	3.25	0.64
Intellectual Stimulation	2.96	2.75	0.18	2.94	3	0.51
Individualised Consideration	3.07	2.94	0.10	3.25	2.97	0.66
Transactional Leadership elements						
Contingent Reward	3.25	3.06	0.03#	3.08	3.08	0.79
Management By Exception (Active)	1.75	1.75	0.27	1.83	1.78	0.60
Management By Exception (Passive)	0.54	0.54	0.46	0.58	0.67	0.25
Laissez-faire Leadership	0.33	0.46	0.03*	0.33	0.34	0.69
Leadership Outcomes:						
Extra Effort	2.83	2.94	0.826	3	2.89	0.92
Effectiveness	3.52	3.29	0.015#	3.65	3.29	0.09
Satisfaction	3.42	3	0.011#	3.67	3.5	0.29

Table 8: Other raters MLQ - Summary of within group comparison statistical data

*= higher median score; #= lower median score

Workplace Culture – Control and Intervention group comparison (Table 3)

A total of four groups of measures were compared in relation to workplace culture. These related to questions about their job, person-centredness, quality and safety and a combined score of all questions relating to workplace culture.

At baseline, there was no significant difference between the control and the intervention groups on three elements (about their job, quality and safety and overall workplace culture). There was a significant difference in baseline measures between the control and the intervention group for the person-centred care element, where the control group had a higher baseline score.

When these measures were repeated, statistically significant differences were found with all elements, where the intervention group demonstrated statistically significant higher repeat scores, including for the overall measure of workplace culture. This suggests improved workplace culture for the intervention group following the program.

Workplace Culture – Within Group Results (Table 3)

Analysis of pre- and post-program measures of workplace culture relating to their job and person-centred approaches for study participants in the control group found a significant difference in mean scores for baseline and repeat measures, where scores were lower in repeat measures. There was no significant difference in mean scores on quality and safety measures.

Analysis of pre- and post-test measures of workplace culture relating to their job and person-centred approaches for study participants in the intervention group found a significant difference in mean scores for baseline and repeat measures, where scores were higher in repeat measures. There was no significant difference in scores on quality and safety measures.

Analysis of pre- and post-test measures for study participants in the intervention group found a significant difference in the overall workplace culture scores between baseline and repeat measures, where mean scores were higher in repeat measures. Analysis of pre- and post-test measures for study participants in the control group found a significant difference in

combined overall scores between baseline and repeat measures, where mean scores were lower in repeat measures.

Results indicated that control group participants felt that workplace culture and person-centredness had diminished over time whereas it had significantly improved for those in the leadership program. There was no statistically significant change in attitude in relation to quality and safety across either group.

Workplace Engagement– Control and Intervention group comparison (Table 4)
The UWES was used to formally evaluate workplace engagement. The three elements of vigour, dedication and absorption evaluated by the tool were analysed separately. An overall measure of workplace engagement was also calculated.

There were significant difference in UWES baseline measures between the control and the intervention groups on one element (absorption), where the control group demonstrated higher baseline scores. When these measures were repeated, statistically significant differences were found with one element (vigour), where the intervention group demonstrated higher repeat scores.

Workplace Engagement – Within Group Results (Table 4)
Analysis of pre- and post-test measures of the UWES for study participants in the control group found no significant difference in scores for baseline and repeat measures for the three elements of vigour, dedication and absorption or for the overall measure of engagement. Analysis of pre- and post-test measures for participants in the intervention group found significant difference in scores for baseline and repeat measures in all three UWES elements and for the overall measure of engagement.

Results suggest improved overall workplace engagement for the intervention group following the program compared with the control group.

Leadership– Control and Intervention group comparison (Tables 5 and 7)
The MLQ data were analysed in two groupings: *self-rating* and *rating by others*.

MLQ Self- rating (Table 5): There was no significant difference in MLQ baseline measures between the control and the intervention groups on any of the 12 elements. When these measures were repeated, statistically significant differences were found with three transformational leadership elements and the three leadership outcomes, where the intervention group demonstrated higher scores.

MLQ Other rater (Table 7): The MLQ ratings for study participants by other raters (managers, peers, subordinates) showed no significant difference in baseline measures between the control and the intervention groups on all but one element, where one transformational element was rated higher in the control group. There was no significant difference in any MLQ measures between the control and the intervention groups by other raters on any of the 12 elements when repeat measures were undertaken.

Leadership – Within Group Results (Tables 6 and 8)

MLQ Self- rating (Table 6): Analysis of pre- and post-test measures of the MLQ for participants in the control group found no significant difference in scores for baseline and repeat measures for all 12 leadership elements. Analysis of pre- and post-test measures for participants in the intervention group found significant difference in scores for baseline and repeat measures on three of five transformational leadership elements (higher than baseline) and on all of the three leadership outcomes (higher than baseline) .

MLQ Other rater (Table 8): Analysis of pre- and post-test measures of the MLQ by other raters for participants in the intervention group found no significant difference in scores for baseline and repeat measures for all 12 leadership elements. However, significant difference were found in scores for baseline and repeat measures on five of the 12 measures for the control group as followed: two transformational elements (decreased scores); one transactional element (decreased score); laissez-faire element (increased scores); two leadership outcome elements (decreased scores)

The MLQ results from the other raters showed that other staff (managers, peers and subordinates) perceived that some of the leadership skills of those in the control group had diminished over time.

Workshop and Action Learning Set Outcomes (Tables 9 and 10)

Prior to and following workshop 1, intervention group participants were invited to rate their level of knowledge in four areas: practice development, leadership, quality and safety and facilitation. Results were analysed statistically and are presented in Table 9.

WORKSHOPS	Workshop 1 (n= 17)	Workshop 2 (n= 10)
Pre- Workshop Mean Score: Knowledge of Practice development	1.82	2.6
Post- Workshop Mean Score: Knowledge of Practice development	3.12	3.55
p-value	0.00	0.01
Pre- Workshop Mean Score: Knowledge of leadership	3.12	3.2
Post- Workshop Mean Score: Knowledge of leadership	3.77	4
p-value	0.005	0.016
Pre- Workshop Mean Score: Knowledge of quality and safety (workshop 1) and facilitation (workshop 2)	3.35	2.5
Post- Workshop Mean Score: Knowledge of quality and safety (workshop 1) and facilitation (workshop 2)	3.59	3.9
p-value	0.102	0.023

Table 9: Workshop outcomes

Results show that intervention group participants reported statistically significant higher levels of knowledge after each of the workshops in three topic areas - practice development (workshops 1 and 2), leadership (workshops 1 and 2) and facilitation (workshop 2). There was not a statistically significant change in how participants rated their knowledge of quality and safety after workshop 1.

After each of the ALS, participants were invited to rate their level of confidence in three areas: - facilitation, with asking enabling questions and in presenting a topic as part of the ALS. Results of these are outlined in Table 10.

ACTION LEARNING SETS (ALS)	ALS 1 July (n= 13)	ALS 2 August (n= 12)	ALS 3 September (n= 8)	ALS 4 October (n= 7)
Pre- ALS: Mean Score: Confidence with facilitation	2.69	2.75	3.56	3.21
Post- ALS: Mean Score: Confidence with facilitation	3.38	3.25	4.06	3.93
p-value	0.007	0.034	0.038	0.023
Pre- ALS: Mean Score: Confidence with questioning	2.89	2.58	3.56	3.29
Post- ALS: Mean Score: Confidence with questioning	3.31	3.42	4.06	3.79
p-value	0.062	0.004	0.038	0.059
Pre- ALS: Mean Score: Confidence with presenting	2.62	3	3.5	3.5
Post- ALS: Mean Score: Confidence with presenting	3.23	3.71	3.94	3.93
p-value	0.005	0.007	0.059	0.083

Table 10: Intervention group self-report of levels of confidence – ALS

Findings illustrate that intervention group participants reported statistically significant higher levels of confidence in the three areas of facilitation, questioning and presenting after each of the ALS, with the exception of ALS 1 and ALS 4 in the area of effective questioning and ALS3 and ALS 4 in the area of presenting on a topic.

DISCUSSION

Leadership in healthcare has been described as being important for achieving high-quality, safe and compassionate patient care (West et al., 2015). The focus of this study was on allied health leaders and leadership development, with the hypothesis being that leadership skills of allied health professionals could be enhanced, leading to improved person-centred clinical care**.** The study sought to generate information about allied health leadership, an area under-investigated in the literature (Bradd et al, 2017, Joubert et al., 2016).

The study aimed to evaluate the effectiveness of the leadership program based on developing transformational leadership through practice development for AHPs within a large Australian public healthcare organisation. In particular, it sought to establish whether the program led to

enhanced leadership capability, workplace engagement and workplace culture. The results obtained from research qualitative and quantitative measures provide empirical means by which to evaluate the leadership program.

Established theoretical models were used to develop a leadership framework that was then used to design the SESLHD Allied Health Leadership Development Program. The leadership program was implemented and evaluated using a mixed methods approach that included a randomised control trial involving a stratified, randomised pre-test/post-test group design, with a control group. This robust approach was used to quantitatively measure the culture, engagement and leadership skills of study participants before and after program implementation, compared with a study control group.

Quantitative measures of leadership using the MLQ-5 were statistically better on three elements of transformational leadership and for the three leadership outcomes for participants in the intervention groups compared with the control group after program implementation, noting that there was no difference in these measures at baseline. Results of the program also demonstrated statistically significant differences in self-reported leadership performance in three transformational leadership elements and for leadership outcomes for participants in the intervention groups before and after the leadership program whereas there were no statistically significant differences in measures for the control group before and after the program. This suggests the effectiveness of the program in developing allied health leaders, an outcome that has not previously been reported in the literature.

It is noted that there was incongruence between the self-reported leadership behaviours and outcomes from individual research participants in both the intervention and control groups and those of other raters using the MLQ. Self-other agreement is a complex areas of evaluation, with the literature typically reporting limited correlation between the ratings by self and others (MacKie, 2015). In the allied health field, Arensberg and colleagues found that subordinate dietitians rated their leaders significantly lower in measures of transformational leadership qualities using the Leadership Behaviour Questionnaire than how leaders rated themselves (Arensberg et al., 1996). MacKie, however, found that other raters (particularly managers) reported a higher level of change after a leadership coaching program

than the participants, noting that participants overestimated self-scores at baseline (MacKie, 2015).

The program did not show any statistically significant differences in how other people (managers, peers and subordinates) rated the leadership skills of intervention group participants using the MFQ before and after the leadership program. This differs from the pre and post self-reported MLQ measures of intervention group participants and suggests that other people did not perceive the change of transformational leadership skills and leadership outcomes identified by the participants themselves.

However, while the program did not show any difference in how other people rated the leadership skills of intervention group participants using the MFQ before and after the program, results showed a statistically significant decline in how other people rated control group participants in relation to two transformational leadership elements and two leadership outcomes. There was also increased scores for the laissez-faire leadership element and for one transactional leadership element.

It is hypothesised that these unexpected results found with the control group on a range of MFQ measures may be attributable to the organisational restructure of allied health services that was in progress at the time of repeat data collection. While organisational change through restructures aims to enhance efficiency, they can reportedly lead to disruption, dislocation and, in fact, less efficiency (Braithwaite et al., 2006, Braithwaite et al., 2005). This may have been the case in this situation. Furthermore, while enhanced transformational leadership attributes were not reported by other raters for program participants, the fact that leadership ratings did not deteriorate during this time of significant organisational change and uncertainty could be viewed as a desirable outcome. Further analysis and research is required to better understand these differences in self-other agreement across the two cohorts.

The intervention group measures of workplace culture were statistically better on all elements measured (about their job, engagement, quality and safety, and overall) than the control group after program implementation, compared with no difference in these measures at baseline. Statistically significant improvement in workplace measures and in workplace engagement was also found for participants in the intervention group before and after the program. This

contrasts with findings from the control group, where there were in fact reduced workplace outcomes reported with some measures over the period of the study.

Within group measures showed that there was not a statistically significant change in attitudes in relation to quality and safety found in either group as part of the study. This may be attributed to the nature of the questions, which focused on issues such as the quality of patient care, team work, quality activities, follow up of near-misses and quality as a team priority. Enhancing quality and safety is a continuous activity enabled by effective leadership (Leonard and Frankel, 2010). It is postulated that program participants, having a greater awareness of quality as part of the program, may have responded noting that there was opportunity for improvement within their local context.

Overall, results have clearly demonstrated that the Allied Health Leadership Development Program resulted in enhanced leadership capability, workplace engagement and workplace culture measures and outputs for participants, compared with a control group.

Self-reported outcome measures were attained by participants after the workshops and ALS. A statistically significant higher level of knowledge of leadership, practice development, quality and facilitation was reported 92% of the time (n=11 of 12 ratings) after the workshops across the two programs. Statistically significant higher levels of confidence in the areas of facilitation, effective questioning and presenting on a topic was found 79% of the time (n=19 of 24 ratings).

These findings demonstrated that the participants felt more confident in their facilitation, questioning and presenting skills following the learning sets. This suggests that the workshops and the ALS were effective in developing the practical skills and abilities of program attendees and that they provided a supportive, safe environment for participants to apply and develop their skills.

In addition to quantitative findings, a very high overall satisfaction with the program was reported and an increase in leadership confidence was apparent, evidenced by the proportion of participants who sought and attained promotional positions following the program. This important finding demonstrated that the program enhanced self-empowerment and identity,

where individuals learnt to self-reflect and master their own capacity to make a difference (MacPhee et al., 2013, Day and Harrison, 2007, MacPhee et al., 2012). In effect, as their leadership self-efficacy grew, it is postulated that participants came to see themselves as leaders and were motivated to seek out new opportunities. Engaging with new leadership and experiences will, in turn, further enhance their capacity to lead into the future (Day and Harrison, 2007).

Applied practice using action learning sets was shown to be effective in providing participants with the opportunity to use their skills in a safe environment, while the workplace project enabled participants to apply their skills in their local context. This action learning, where there is active learning within the context of a workplace (Dewing, 2010, Akhtar et al., 2016), is considered a fundamental element leading to the success of this program.

Feedback from participants along with the nature of their projects that were implemented as part of the program demonstrated enhanced person-centredness for individuals and their teams as a result of the program. Practice development was thus shown to be effective in developing leadership capability through the use of structured methods and facilitation.

Individualised support through coaching was reported to be valuable for those AHPs who were offered it as part of the program. A key component of coaching support focused on leading self through self-awareness and effective self-care, as it was evident many AHPs had not sufficiently considered this important aspect of leadership. Future leadership programs could consider incorporating mechanisms such as coaching to support an individual leader as part of their learning process.

It has been suggested that 'person-centredness is ultimately concerned with human flourishing' (Dewing and McCormack, 2017, p.150). Enhanced workplace engagement and workplace culture outcomes found with this leadership program indicate an improved capacity of the allied health leaders to flourish through well-being, a sense of empowerment and achievement (Dewing and McCormack, 2017).

Finally, as an in-house program developed and delivered locally by a current SESLHD employee, the program was considered to be convenient, practical and low-cost. This means that the program could be regularly conducted and potentially spread to other healthcare organisations.

Limitations

There are a number of limitations to this study. The small overall sample size with a cohort limited to volunteers from one healthcare organisation means that further research is required to determine generalisability of findings. Additionally, there was a loss of subjects (n=3, 9%). Although their data was excluded from analysis, this may have influenced the final results.

Furthermore, the subjects involved in this study were volunteer participants who self-selected for the study. This sampling may have the potential to affect the generalisability of findings due a potential positive bias. The use of self-reported measures also results in an inherent bias to findings.

In this study, the researcher developed the leadership program and also undertook the intervention and evaluation. To minimise the impact of the researcher on the study, a range of actions were undertaken including using external personnel for the randomisation process, use of valid and reliable measurement tools and oversight by an external committee.

CONCLUSION

Leadership in healthcare is essential for achieving quality, person-centred patient care (West et al., 2015, Berwick et al., 2008). Results from this study have provided new empirical evidence about allied health leadership development which has not been previously described in the literature (Leggat and Balding, 2013, Joubert et al., 2016).

This research demonstrates that an increase in transformational leadership behaviours and more effective leadership outcomes can be developed through action learning and applied approaches, as evidenced by improved outcomes using the MLQ compared with a matched control group. The study also demonstrates the effectiveness of using practice development for allied health leadership development where there is a focus on developing person-centred

healthcare teams and flourishing workplace environments. This approach also builds greater clinical engagement and results in an improved focus on quality care.

This study describes a new, evidence-based program for enhancing the leadership skills of AHPs within the public healthcare environment that is efficient and practical. Results from the study illustrate that investing in allied health leadership development can build leadership confidence and leader effectiveness, resulting in enhanced workplace engagement and positive leadership outcomes for allied health leaders, their teams and their patients. These are important findings that add new empirical evidence to the allied health literature.

More research to determine generalisability of findings across healthcare agencies and clinical settings, involving a greater number of AHPs from all allied health disciplines is required to further the research agenda in this under-investigated area. Further study in relation to self-other agreement as part of allied health leadership development is also required.

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