Preventive Medicine 161 (2022) 107113

Contents lists available at ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed

Improving the wellbeing of LGBTQ+ employees: Do workplace diversity training and ally networks make a difference?

Francisco Perales

School of Social Science, Michie Building (#9), St Lucia Campus, The University of Queensland, Brisbane, QLD 4072, Australia

ARTICLE INFO

Keywords:
Ally networks
Diversity training
LGBTQ+
Wellbeing
Workplace

ABSTRACT

Despite growing recognition that lesbian, gay, bisexual, trans, queer, and other minority (LGBTQ+) employees have lower levels of workplace wellbeing than cis-gender heterosexual employees, few studies have examined how different workplace interventions may mitigate these disparities. This study provides first-time evidence of associations between LGBTQ+ employee wellbeing and two types of initiatives that have received substantial public attention and employer uptake: workplace gender and sexuality diversity training and ally (or employee) networks. To accomplish this, the analyses leverage Australian data from a unique, national employer-employee survey of workplace inclusion (2020 Australian Workplace Equality Index Employee Survey; $n = 31{,}277$). These data were used to derive individual- as well as organizational-level measures of diversity training and ally behaviors, and to estimate their associations with a multidimensional index of LGBTQ+ employee wellbeing using fully adjusted random-intercept multilevel regression models. The results indicated that all individual- and organizational-level measures of workplace diversity training and ally behaviors exhibited positive, large, and statistically significant associations with the LGBTQ+ employee wellbeing index, controlling for an extensive set of confounds and organization-specific random effects. These findings have significant implications for health policy and practice. Specifically, they indicate that diversity training and ally networks may improve wellbeing amongst LGBTQ+ employees. This suggests that employer investments in diversity training and ally networks are effective interventions to enhance workplace culture, employee productivity and intergroup relations.

1. Background

A wealth of scholarship documents how individuals who identify as a gender minority (e.g., trans, non-binary, or agender people) or a sexual minority (e.g., gay/lesbian, bisexual, pansexual, or queer people) face unique stressors in their day-to-day lives (Hatzenbuehler, 2009; Fredriksen-Goldsen et al., 2014; Bränström et al., 2016). Theoretical frameworks such as the minority stress model contend that these stressors stem from stigma and discrimination fueled by hetero-patriarchal and cis-normative social structures (Meyer, 2003) and extend to multiple social environments including the workplace (Waldo, 1999; Holman, 2018). Indeed, despite the introduction of employment-related equal opportunities legislation in countries such as the US, the UK and Australia, research recurrently shows that lesbian, gay, bisexual, trans, queer, and other minority (LGBTQ+) people are disproportionately affected by informal forms of workplace discrimination, exclusion, and harassment (Galupo and Resnick, 2016; Sears et al., 2021; Waite, 2021). As a result, LGBTQ+ employees exhibit poorer average employment outcomes than cis-gender heterosexual employees—including higher unemployment and turnover rates; lower wages, job satisfaction and workplace wellbeing; and slower career progression (Badgett et al., 2007; McFadden, 2015; Mize, 2016; Drydakis, 2021; Shannon, 2021).

The growing empirical recognition of LGBTQ+ employees' suboptimal employment prospects has triggered important discussions about employer-level interventions that could improve their circumstances (Colgan and McKearney, 2012; Badgett et al., 2013; Madera, 2013; Pichler et al., 2017). Two types of initiatives that have received substantial attention in scholarly debates and mainstream media, as well as significant uptake by employers, are workplace diversity training and workplace employee networks. In the context of this study, workplace diversity training refers to educational programs on gender and sexuality diversity delivered to employees within a given organization (Madera, 2013; Gedro, 2010; Pride in Diversity, 2011). Typically, this training aims to sensitize the workforce about human diversity in gender and sexual expression; introduce key concepts such as heterosexism, homophobia, and unconscious bias; describe challenges affecting minorities in the workplace and beyond; and demonstrate supportive

E-mail address: f.perales@uq.edu.au.

https://doi.org/10.1016/j.ypmed.2022.107113
Received 8 February 2022; Received in revised form 22 April 2022; Accepted 9 June 2022
Available online 16 June 2022
0091-7435/© 2022 The Author. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

behaviors (Madera, 2013; Gedro, 2010). The training can be developed in-house by individual employers or outsourced to specialist external providers; it can be delivered online or face-to-face; and it can range from one-off sessions to longer-term, more-intensive programs (Madera, 2013; Pride in Diversity, 2011).

Employee (or 'ally') networks, on the other hand, refer to formal or semi-formal internal groups of employees established to create a respectful and inclusive workplace culture and support LGBTQ+ employees (Madera, 2013; Pride in Diversity, 2011; Githens and Aragon, 2009; Colgan, 2016). Group members (or 'allies') may comprise cis-gender heterosexual and LGBTQ+ individuals, and are expected to demonstrate supportive behaviors (e.g., using correct pronouns, attending Pride events), actively prevent or challenge workplace micro-aggressions (e.g., 'calling out' homophobic or transphobic jokes or remarks), and contribute to creating supportive atmospheres by making their commitment to inclusion visible (e.g., through pins, posters or email signatures) (Madera, 2013; Brooks and Edwards, 2009; Pride in Diversity, 2012). Diversity training and ally networks are closely connected, which justifies the joint focus of the present study; ally networks are often responsible for the roll out of diversity training, and such training constitutes a key pre-requisite for employees to be recognised as network members (Pride in Diversity, 2012; Gremillion and Powell, 2019). Theoretically, frequent and well-attended workplace diversity training and denser ally networks should lead to improvements on LGBTQ+ employees' workplace wellbeing and outcomes. Workplace diversity training is expected to accomplish this goal by increasing familiarity and comfort with gender and sexuality diversity amongst the workforce, thereby reducing discrimination and stigma, and resulting in more positive treatment of LGBTQ+ employees. Similarly, ally networks should foster the normalisation of positive ally behaviors, and hence reduce the day-to-day minority stressors encountered by LGBTQ+ people at work.

Despite this persuasive narrative, to the author's knowledge, no studies to date have empirically examined the associations between workplace diversity training, ally networks and the wellbeing of LGBTQ+ employees. Closest to this aim are a handful of studies that evaluated concrete LGBTQ+ diversity training programs (Gremillion and Powell, 2019; Israel et al., 2014; Poteat et al., 2017; Anderson et al., 2020). Generally, these studies have found that (cis-gender, heterosexual) employees participating in diversity training self-report adopting more inclusive attitudes and behaviors post-training compared to pre-training. However, these studies assessed only the extent to which programs changed the attitudes and competencies of attendees and failed to examine their associations with the wellbeing of LGBTQ+ employees. Additional research that directly measures whether and how diversity training affects LGBTQ+ employee wellbeing is necessary for, at least, two interrelated reasons. First, improving LGBTQ+ employee wellbeing is arguably the ultimately goal of diversity training. Therefore, LGBTQ+ employee wellbeing should be the prime outcome in analyses of its effectiveness. Second, self-reported changes in attitudes and behaviors by cis-gender heterosexual employees may not translate into actual or sufficient behavioural change to make a meaningful impact to the workplace wellbeing of their LGBTQ+ co-workers. Concerning ally networks, the evidence base is even scarcer than for diversity training. To the author's knowledge, no previous research study has formally examined the impact (or lack thereof) of ally networks on LGBTQ+ employees' wellbeing. As an exception, one qualitative study revealed that these networks benefited some LGBTQ+ employees through creating connections with similar others (McFadden and Crowley-Henry, 2018).

Overall, the lack of evidence on the associations between diversity training and ally networks and the wellbeing of LGBTQ+ employees constitutes a significant omission within scholarship aimed at devising practical solutions to LGBTQ+ workplace exclusion. The present study fills this important gap in scholarly knowledge and provides a novel answer to the question "*are diversity training and ally behaviors associated with greater levels of LGBTQ+ employee wellbeing?*"

2. Methods

2.1. Data and sample

The present study was exempted from full ethics review by The University of Queensland's Ethics Committee and conformed to the principles embodied in the Declaration of Helsinki. It used secondary data from the 2020 Australian Workplace Equality Index (AWEI) Employee Survey, a large-scale cross-sectional survey aimed at documenting the impact of LGBTQ+ inclusion initiatives on employees and organizations (Pride in Diversity, 2019). The AWEI Employee Survey was designed and implemented by ACON Health, Australia's largest not-for-profit LGBTQ+ community health organization. It was collected through a voluntary online questionnaire issued to employees within organizations that were either members of ACON Health's *Pride in Diversity* program or chose to participate.

These data are internationally distinctive and optimal to accomplish this study's aims due to three key features: (i) the richness of information on diversity and inclusion, (ii) the ability to identify employees working in the same organizations, and (iii) the large subsample of LGBTQ+ respondents. The total sample comprised 31,277 individuals from 149 organizations across a wide and representative range of sectors and industries, including 5538 LGBTQ+ employees from 145 organizations.

2.2. Measures

2.2.1. LGBTQ+ employee wellbeing

As previous studies using these data (Perales et al., 2022; Perales et al., 2020), employee wellbeing was captured through a composite index tapping on multiple, theoretically-informed domains of LGBTQ+ workplace inclusion and belongingness (Lyubomirsky, 2001; Page and Vella-Brodrick, 2009; Wijngaards et al., 2021; Zheng et al., 2015). Specifically, LGBTQ+ respondents were asked to rate their degree of agreement with seven statements: 'I feel mentally well at work', 'I feel safe and included within my immediate team', 'I feel accepted for who I am', 'I feel I can be myself at work', 'I feel productive at work', 'I feel engaged with the organization and my work', and 'I feel a sense of belonging here'. Agreement was reported on a Likert scale ranging from (1) 'Strongly disagree' to (5) 'Strongly agree'. The 7 item scores were averaged into a composite index, which was subsequently rescaled to range from 0 (lowest wellbeing) to 100 (highest wellbeing) for ease of interpretation.

The resulting index exhibited optimal statistical properties. It featured a remarkable degree of internal consistency (Cronbach Alpha = 0.92) and appropriate item-rest correlations (ranging from 0.69 to 0.80). Further, principal component analyses (PCA) provided strong evidence of scale unidimensionality. Only one PCA factor had an Eigenvalue above 1 (Eigenvalue = 4.47), which explained 68% of the variance and with which all index items were positively and strongly correlated (Pearson r ranged from 0.74 to 0.87).

2.2.2. Workplace diversity training and ally practices

The key explanatory variables are seven measures of the intensity and quality of workplace diversity training and ally behaviors. These can be divided into two groups: four individual-level variables derived from LGBTIQ+ employees' survey responses (*self-reports*) and three organization-level variables derived from their co-workers (*ecological measures*).

The self-reported measures were based on LGBTQ+ employees' answers to four questions about their experiences at work. Three of these questions concerned the degree to which their expectations were met: *"As someone of diverse sexuality and/or gender, how has your employer met your expectations concerning the following workplace practices? Visibility*

and promotion of an internal employee network for sexuality and gender diverse employees and allies… Visibility and promotion of inclusion or ally training in regard to sexuality and gender diversity… Visibility of active allies". The response options were: 'Exceeded expectations', 'Met expectations', 'Did not meet expectations', and 'No expectations'. These categories entered the models as a set of dummy variables (reference: 'Did not meet expectations'). A fourth self-reported measure captured LGBTQ+ respondents' degree of agreement with the statement: *"Allies have positively impacted my sense of inclusion"*. Responses were on a Likert scale from (1) 'Strongly disagree' to (5) 'Strongly agree' and the measure entered the model as a continuous-level explanatory variable.

Critically, the multilevel structure of the data enabled the derivation of a series of innovative, ecological measures of diversity training and ally behaviors. The measures were constructed by averaging out the survey responses from cis-gender, heterosexual individuals ($n \sim 24{,}000$) working in the same organizations as the focal LGBTQ+ employees. The mean number of cis-gender heterosexual employees across organizations was 211 (median = 102), with 91% of organizations having at least 20 such respondents. The ecological measures complement the self-reported measures and—because they are derived from sources external to the respondent—they are not distorted by individuals' idiosyncratic beliefs, common-source biases, or reporting biases.

Two ecological measures captured the proportion of co-workers in the organization who reported that they (i) had attended awareness or ally training within the last year, and (ii) considered themselves an active ally. The third captured the organizational average of a composite index of positive ally behaviors (Alpha = 0.77). The latter was constructed by averaging out responses, in a scale of (1) 'Strongly disagree' to (5) 'Strongly agree', to the following statements: *"I understand the challenges people of diverse sexuality/gender face at work"*; *"I understand why active Allies are important"*; *"I could list several behaviors that would be expected of an ally"*; *"I know of material/training that would show me how to be an ally"*; and *"I know where to find more information on this aspect of diversity and inclusion"*. All ecological measures entered the models as continuous-level explanatory variables.

2.2.3. Control variables

Following earlier studies of LGBTQ+ employee wellbeing (Perales et al., 2020), the main models were adjusted for an encompassing set of confounds, including respondents' sexual and gender identity, age group, education, culturally and linguistically diverse (CALD) background, Indigenous self-identification, job level, workplace location, employment sector and employer size (for details, see Table 1). A very small amount of missing data on the control variables for age and ethnicity (<5%) was dealt with through mode imputation. Table 1 presents descriptive statistics on all model variables.

Table 1
Sample descriptive statistics.

Variable	Mean/ %	SD	Min.	Max.
Outcome variable				
Employee wellbeing index	78.6	19.8	0	100
Diversity training and allies, self-reports				
Visibility and promotion of an internal employee network for sexuality and gender diverse employees and allies, %				
Exceeded expectations	29.6		0	1
Met expectations	42.0		0	1
Did not meet expectations	18.5		0	1
No expectations	9.9		0	1
Visibility and promotion of inclusion/ally training on sexuality and gender diversity, %				
Exceeded expectations	20.1		0	1
Met expectations	40.5		0	1
Did not meet expectations	27.1		0	1
No expectations	12.3		0	1
Visibility of active allies, %				
Exceeded expectations	21.1		0	1
Met expectations	40.6		0	1
Did not meet expectations	25.4		0	1
No expectations	12.9		0	1
Allies have positively impacted my sense of inclusion	3.6	1.1	1	5
Diversity training and allies, ecological measures				
Proportion of employees who are an active ally	0.5	0.1	0	1
Proportion of employees who attended ally training	0.3	0.1	0	0.94
Mean of positive ally behavior index	3.8	0.2	3	4.57
Control variables				
Gender identity, %				
Cis-gender, non-heterosexual man	46.7		0	1
Cis-gender, non-heterosexual woman	40.0		0	1
Trans man	1.5		0	1
Trans woman	2.0		0	1
Non-binary, assigned male at birth	1.2		0	1
Non-binary, assigned female at birth	2.4		0	1
Not stated	6.2		0	1
Age group, %				
≤24 years	8.5		0	1
25–44 years	64.3		0	1
45+ years	27.3		0	1
Respondent identifies as indigenous, %	3.8		0	1
Respondent identifies as CALD, %	10.8		0	1
Respondent has degree-level qualifications, %	66.0		0	1
Workplace is in an urban location, %	87.5		0	1
Job level, %				
Senior/executive	9.9		0	1
Middle management	12.0		0	1
Regular employee	78.0		0	1
Sector of employment, %				
Government	44.8		0	1
Private	42.5		0	1
Other	12.7		0	1
Employer size, %				
<500 employees	3.2		0	1
501–8000 employees	45.5		0	1
>8000 employees	35.6		0	1
No information	15.7		0	1

Notes: Australian Workplace Equality Index (AWEI) Employee Survey 2020 data. n(employees) = 5538; n(organizations) = 145. SD: Standard deviation. CALD: Culturally and Linguistically Diverse.

2.3. Estimation approach

The associations between LGBTQ+ employees' wellbeing and workplace diversity training and ally behaviors were analyzed using random-intercept multilevel regression models implemented using Stata 17.0 software. Multilevel models account for the nested structure of the data, with respondents (Level 1) being nested within organizations (Level 2). As such, these models are optimal for applications where an individual-level outcome (in this case, LGBTQ+ employee wellbeing) is modelled as a function of both individual- and aggregate-level predictors (in this case, different measures of workplace diversity training and ally behaviors and employees' socio-demographic factors) (Rabe-Hesketh and Skrondal, 2012). Similar models have been deployed in earlier studies using the AWEI Employee Survey data (Perales et al., 2020). In this study, the models took the following form:

$$W_{ro} = \alpha_o + \beta DTAB_{ro} + \gamma C_{ro} + e_{ro} + u_o \quad (1)$$

where subscripts r and o denote 'respondents' and 'organizations', respectively; W denotes the index of employee wellbeing, $DTAB$ is a given indicator of workplace diversity training or ally behaviors, C is a set of control variables, α is a model intercept, e is a random error term, u is an organization-specific random intercept, and β and γ are model coefficients to be estimated. Separate models were fitted for each of the key explanatory variables ($DTAB$) to avoid bias to the results due to collinearity between the different indicators of diversity training and ally behaviors.

Intuitively, these models compare the wellbeing of LGBTQ+ employees working in organizations where more cis-gender heterosexual employees participated in diversity training or exhibited ally behaviors to the wellbeing of LGBTQ+ employees working in organizations where fewer of their cis-gender heterosexual peers did. The key parameter of interest is β, which summarizes the associations between workplace diversity training or ally behaviors and LGBTQ+ employee wellbeing.

3. Results

The estimated coefficients on the key explanatory variables from the multilevel regression models are presented in Table 2, and visually represented as marginal effects in Figs. 1 and 2.

Across models, diversity training and ally behaviors were consistently and unambiguously associated with higher workplace wellbeing amongst LGBTQ+ employees. For the self-reported explanatory variables (Models 1 to 4; Fig. 1), LGBTQ+ respondents reported higher levels of workplace wellbeing when they declared *exceeded*—relative to *unmet* —expectations regarding employee networks ($\beta = 18.53$; $p < 0.01$), ally training ($\beta = 18.69$; $p < 0.01$) and visible allies ($\beta = 20.97$; $p < 0.01$), ceteris paribus. The same applied to those who reported that their expectations were *met* (βs from 9.40 to 11.25; $p < 0.01$) and those who had *no* expectations (βs from 3.16 to 3.77; $p < 0.01$). Stronger agreement with the statement "*Allies have positively impacted my sense of inclusion"* was also associated with greater levels of employee wellbeing ($\beta = 7.36$; $p < 0.01$).

Critically, a similar pattern of results emerged for the ecological measures of diversity training and ally behaviors (Models 5 to 7; Fig. 2), signaling the robustness of the findings. All else being equal, a one-unit increase in the proportion of co-workers who considered themselves active allies was associated with an increase in LGBTQ+ employees' wellbeing amounting to 15.98 units ($\beta = 15.98$; $p < 0.01$), whereas a one-unit increase in the proportion who had received ally training was associated with an increase of 9.82 units ($\beta = 9.82$; $p < 0.01$). Similarly, each one-unit increase in the organizational average of the positive ally behavior index was associated with an increase of 9.84 units in LGBTQ+ employees' wellbeing ($\beta = 9.84$; $p < 0.01$).

Table A1 in the Online Supplementary Materials shows the full set of regression coefficients, including the coefficients on the control variables. While these are not of key interest to this study, they offered further insights into the role of socio-demographic and employment factors in predicting the workplace wellbeing of LGBTQ+ employees. Since the pattern of results was largely consistent across models, for parsimony, the discussion below focuses on the estimates in Model 1.

All else being equal, there were statistically significant differences in LGBTQ+ employees' wellbeing depending on their specific gender and sexual identity. Male cis-gender non-heterosexual employees (the reference category) reported the greatest levels of wellbeing, followed

Table 2
Abridged results from multilevel regression models of employee wellbeing.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Diversity training and allies, self–reports							
Visibility and promotion of internal employee network for sexuality and gender diverse employees and allies							
Exceeded expectations	18.53** [17.06,20.01]						
Met expectations	9.40** [8.04,10.76]						
Did not meet expectations (*reference*)							
No expectations	3.28** [1.37,5.19]						
Visibility and promotion of inclusion/ally training on sexuality and gender diversity							
Exceeded expectations		18.69** [17.23,20.15]					
Met expectations		9.53** [8.31,10.74]					
Did not meet expectations (*reference*)							
No expectations		3.16** [1.50,4.83]					
Visibility of active allies							
Exceeded expectations			20.97** [19.53,22.41]				
Met expectations			11.25** [10.03,12.47]				
Did not meet expectations (*reference*)							
No expectations			3.77** [2.14,5.39]				
Allies have positively impacted my sense of inclusion				7.36** [6.94,7.78]			
Diversity training and allies, ecological measures							
Proportion of employees who are an active ally					15.98** [10.81,21.14]		
Proportion of employees who attended ally training						9.82** [5.32,14.32]	
Mean of positive ally behavior index							9.84** [6.94,12.75]
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R^2	0.16	0.16	0.18	0.22	0.06	0.06	0.06

Notes: Australian Workplace Equality Index (AWEI) Employee Survey 2020 data. *n*(employees) = 5538; *n*(organizations) = 145. Unstandardized coefficients from multilevel regression models; 95% confidence intervals in brackets. All models were adjusted for sexual and gender identity, age group, education level, culturally and linguistically diverse background, Indigenous self-identification, workplace location, job level, employment sector, and organization size. Statistical significance (two-sided tests): ** $p < 0.01$, * $p < 0.05$.

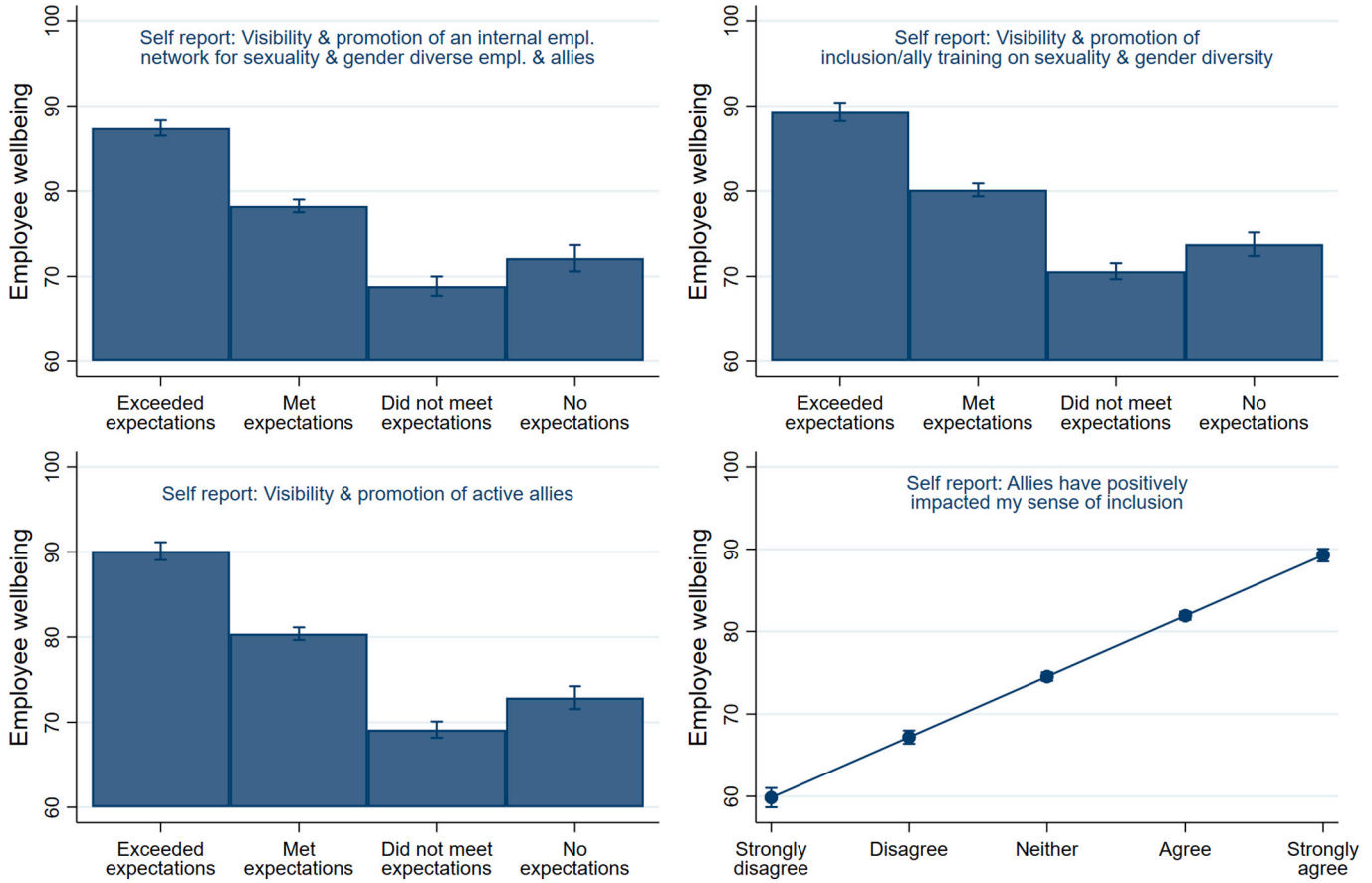

Fig. 1. Marginal effects from multilevel models of employee wellbeing, self-reported measures of diversity training and ally networks.
Notes: Australian Workplace Equality Index (AWEI) Employee Survey 2020 data. *n*(employees) = 5538; *n*(organizations) = 145. Marginal effects with the covariates set at their actual values based on results from Models 1 to 4 in Table 2. Whiskers denote 95% confidence intervals.

by female cis-gender non-heterosexual employees ($\beta = -1.53$; $p < 0.01$), female trans employees ($\beta = -4.17$; $p < 0.05$), male trans employees ($\beta = -5.97$ $p < 0.01$), non-binary employees assigned female at birth ($\beta = -6.18$; $p < 0.01$) and non-binary employees assigned male at birth ($\beta = -7.82$; $p < 0.01$). Indigenous LGBTQ+ employees reported lower levels of workplace wellbeing than non-Indigenous employees ($\beta = -2.62$; $p < 0.05$), and so did LGBTQ+ respondents who were regular employees ($\beta = -5.84$; $p < 0.01$) or middle managers ($\beta = -2.38$; $p < 0.05$), compared to senior/executive managers. LGBTQ+ employees in large organizations with over 8000 employees reported lower wellbeing than those in small organizations with fewer than 500 employees ($\beta = -3.15$; $p < 0.05$). There were however no statistically significant differences in LGBTQ+ employee wellbeing by respondents' age group, CALD background, and education, or by workplace location and employment sector.

4. Discussion

Over the past two decades, employers have increasingly embraced gender and sexuality diversity training and ally networks as a means to improve the workplace experiences of LGBTQ+ employees (Colgan and McKearney, 2012; Badgett et al., 2013; Madera, 2013; Pichler et al., 2017). However, the increasing popularity of these initiatives has not been accompanied by a corresponding body of empirical evidence assessing their effectiveness. This study has filled an important gap in knowledge by providing first-time evidence of associations between workplace diversity training and ally behaviors and the wellbeing of LGBTQ+ employees. Consistent with theoretical expectations, all measures of workplace diversity training and ally behaviors exhibited positive, large, and statistically significant associations with LGBTQ+ employee wellbeing, net of an extensive set of controls.

These results add to the incipient body of empirical evidence on the potential influence of LGBTQ+ workplace inclusion initiatives. First, they represent a significant step forwards in demonstrating the positive outcomes of workplace training on gender and sexuality diversity. While previous research had shown that such training can change the beliefs and competencies of attendees (Gremillion and Powell, 2019; Israel et al., 2014; Poteat et al., 2017; Anderson et al., 2020), the present study demonstrated that it also results in noticeable improvements on the workplace wellbeing of their LGBTQ+ co-workers. Second, the results constitute first-time evidence that ally networks and behaviors are indeed empirically associated with LGBTQ+ employee wellbeing. This pattern of results lends support to existing theoretical postulations and popular beliefs in diversity management (Madera, 2013; Pride in Diversity, 2011; Githens and Aragon, 2009; Colgan, 2016).

These findings hold also valuable theoretical lessons. The positive associations between greater participation in workplace diversity training by cis-gender heterosexual employees and denser ally networks and LGBTQ+ employees' wellbeing are consistent with tenets of the minority stress model (Hatzenbuehler, 2009; Fredriksen-Goldsen et al., 2014; Bränström et al., 2016; Meyer, 2003; Waldo, 1999; Holman, 2018). Specifically, the observed relationships suggest that minority stressors stemming from a lack of understanding and appreciation of diversity by cis-gender heterosexual employees are a likely source of wellbeing disparities between employees with different genders and sexualities. Interestingly though, the results revealed statistically significant differences in workplace wellbeing across LGBTQ+ subgroups, even after accounting for diversity training and ally behaviors. Holding

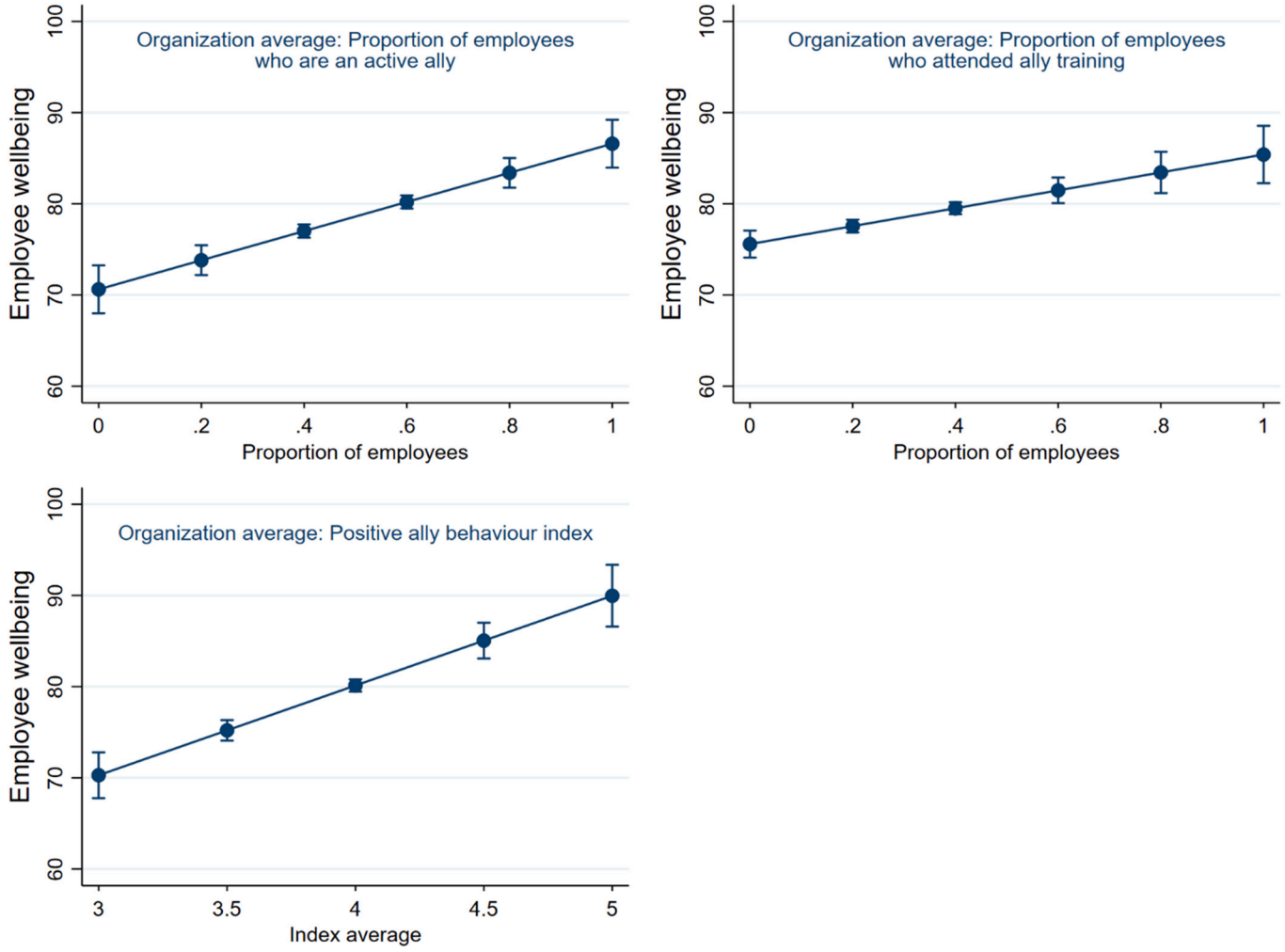

Fig. 2. Marginal effects from multilevel models of employee wellbeing, ecological measures of diversity training and ally networks.
Notes: Australian Workplace Equality Index (AWEI) Employee Survey 2020 data. *n*(employees) = 5538; *n*(organizations) = 145. Marginal effects with the covariates set at their actual values based on results from Models 5 to 7 in Table 2. Whiskers denote 95% confidence intervals.

the latter constant, LGBTQ+ employees identifying as 'male, cis-gender and non-heterosexual' (i.e., gay/bisexual men) and, to a lesser extent, 'female, cis-gender and non-heterosexual' (i.e., lesbian/bisexual women) reported greater wellbeing than other LGBTQ+ employees. The wellbeing of non-binary-identifying employees was distinctively low. This pattern of results suggests that, even in the presence of inclusion initiatives, wellbeing hierarchies within the LGBTQ+ umbrella persist (Waite, 2021; Beauregard et al., 2018; Boncori et al., 2022). This finding underscores the importance of appropriately incorporating trans and non-binary content in diversity inclusion initiatives, as these groups remain disadvantaged relative to other minorities (Waite, 2021; Beauregard et al., 2018; Boncori et al., 2022).

4.1. *Strengths, limitations and avenues for further research*

The present study featured several, important strengths: it leveraged rich and unique employer-employee survey data incorporating large samples of LGBTQ+ and other employees from diverse organizations; it made use of multiple indicators of workplace diversity training and ally networks, including both self-reported and ecological measures; it examined a composite, multidimensional measure of employee wellbeing; and it relied on multilevel regression models adjusted for an encompassing set of controls.

A key study limitation was the AWEI Employee Survey's reliance on non-probability methods to recruit organizations and employees. As a result, selection biases might have altered the magnitude of the presented estimates and inferential statistics must be interpreted with caution. The organizations participating in the AWEI Employee Survey might be—on average—more committed to workplace inclusion than non-participating organizations. If this was the case, then the estimates in this study may represent downward biased estimates of the true relationships of interest. That is, even in this sample of potentially highly inclusive organizations, there is evidence of large, positive and statistically significant associations between diversity training and ally networks and LGBTQ+ employee wellbeing.

Further, in the AWEI Employee Survey, employee wellbeing was only available for LGBTQ+ individuals. This precluded examining how inclusion initiatives affect not only LGBTQ+ employees, but also their cis-gender heterosexual peers. Future studies may wish to replicate the findings presented here using a probability survey and extend the analyses beyond LGBTQ+ employees. It is also important to acknowledge that the estimates reported in this study are based on observational, cross-sectional data, and should not be interpreted as causal effects. Future research could move towards causal estimation through the use of longitudinal datasets and/or experimental methods.

Nevertheless, the results reported here open interesting avenues for further inquiry. While the analyses demonstrated overall associations, it is important to recognize that the content and intensity of diversity training programs and the composition and practices of ally networks may differ across organizations. Furthermore, such differences may have

a bearing on the degree to which employees from smaller subgroups within the LGBTQ+ umbrella (e.g., trans and non-binary employees) may benefit from these initiatives. Further research examining heterogeneity in the effects of inclusion initiatives based on their content and across different minority subgroups is warranted.

5. Conclusion

The novel findings reported here have significant implications for policy and practice, providing a strong case for the development and implementation of affirmative LGBTQ+ inclusion initiatives. Specifically, the results establish that workplace training on gender and sexuality diversity and ally networks are likely to be efficient interventions to improve the wellbeing of LGBTQ+ employees. Given known associations between workplace wellbeing and other important outcomes in the realm of work (e.g., employee retention and career progression) and in other life domains (e.g., mental health) (Bartley et al., 2005; Wright and Bonett, 2016; Walsh et al., 2018), the benefits of these inclusion initiatives may be far reaching.

The results of this study also paint a promising 'business case' for employers to invest in workplace diversity training and ally networks (Badgett et al., 2013). While the cost of these initiatives is modest, the results suggest that their returns—in terms of workplace culture, employee productivity and intergroup relations—may be quite substantial. However, this is not to say that these initiatives are sufficient to fully remedy disparities in the workplace experiences and outcomes of employees with diverse genders and sexualities (McFadden and Crowley-Henry, 2018). Achieving equity at work for LGBTQ+ employees requires sustained and concerted efforts by stakeholders within and outside the workplace.

Declarations

This research was partially supported by the Australian Government through the Australian Research Council's Centre of Excellence for Children and Families over the Life Course (CE200100025). The author declares no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Author contributions

FP is the sole author of this manuscript and completed all tasks associated with it.

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.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ypmed.2022.107113.

References

Anderson, A.R., Knee, E., Ramos, W.D., 2020. LGBTQ training for aquatic employees: impact on attitudes and professional competencies. Int. J. Aquat. Res. Educ. 12 (3), 1–17.
Badgett, M.V.L., Lau, H., Sears, B., et al., 2007. Bias in the Workplace: Consistent Evidence of Sexual Orientation and Gender Identity Discrimination. The Williams Institute.
Badgett, M.V.L., Durso, L., Kastanis, A., et al., 2013. The Business Impact of LGBT-Supportive Workplace Policies. The Williams Institute.
Bartley, M., Ferrie, J., Montgomery, S.M., 2005. Social determinants of health. In: Marmot, M., Wilkinson, R. (Eds.), Health and Labour Market Disadvantage: Unemployment, Non-employment, and Job Insecurity. Oxford University Press, Oxford.
Beauregard, T.A., Arevshatian, L., Booth, J.E., et al., 2018. Listen carefully: transgender voices in the workplace. Int. J. Hum. Resour. Manag. 29 (5), 857–884.
Boncori, I., Sicca, L.M., Bizjack, D., 2022. Transgender and gender non-conforming people in the workplace: Direct and invisible discrimination. In: Nachmias, S., Caven, V. (Eds.), Inequality and organizational practice (Volume 1) Work and welfare. Springer, Cham.
Bränström, R., Hatzenbuehler, M.L., Pachankis, J.E., et al., 2016. Sexual orientation disparities in preventable disease: a fundamental cause perspective. Am. J. Public Health 106 (6), 1109–1115.
Brooks, A.K., Edwards, K., 2009. Allies in the workplace: including LGBT in HRD. Adv. Dev. Hum. Resour. 11 (1), 136–149.
Colgan, F., 2016. LGBT company network groups in the UK: Tackling opportunities and complexities in the workplace. In: Kollen, T. (Ed.), Sexual Orientation and Transgender Issues in Organizations. Springer International Publishing, Switzerland, pp. 525–538.
Colgan, F., McKearney, A., 2012. Visibility and voice in organisations: lesbian, gay, bisexual and transgendered employee networks. Equal. Divers. Inclusion 31 (4), 359–378.
Drydakis, N., 2021. Sexual orientation discrimination in the labor market against gay men. Rev. Econ. Househ. https://doi.org/10.1007/s11150-021-09581-.
Fredriksen-Goldsen, K.I., Simoni, J.M., Kim, H.-J., et al., 2014. The health equity promotion model: reconceptualization of lesbian, gay, bisexual, and transgender (LGBT) health disparities. Am. J. Orthop. 84 (6), 653–663.
Galupo, M.P., Resnick, C.A., 2016. Experiences of LGBT microaggressions in the workplace: Implications for policy. In: Kollen, T. (Ed.), Sexual Orientation and Transgender Issues in Organizations. Springer International Publishing, Switzerland, pp. 271–287.
Gedro, J., 2010. Understanding, designing, and teaching LGBT issues. Adv. Dev. Hum. Resour. 12 (3), 352–366.
Githens, R.P., Aragon, S.R., 2009. LGBT employee groups: goals and organizational structures. Adv. Dev. Hum. Resour. 11 (1), 121–135.
Gremillion, H., Powell, C., 2019. Evaluating Unitec's ALLY workshop on diverse sexuality and gender inclusivity. Eval. J. Austr. 19 (3), 134–146.
Hatzenbuehler, M.L., 2009. How does sexual minority stigma "get under the skin"? A psychological mediation framework. Psychol. Bull. 135 (5), 707–730.
Holman, E.G., 2018. Theoretical extensions of minority stress theory for sexual minority individuals in the workplace: a cross-contextual understanding of minority stress processes. J. Fam. Theory Rev. 10 (1), 165–180.
Israel, T., Harkness, A., Delucio, K., et al., 2014. Evaluation of police training on LGBTQ issues: knowledge, interpersonal apprehension, and self-efficacy. J. Police Crim. Psychol. 29 (2), 57–67.
Lyubomirsky, S., 2001. Why are some people happier than others? The role of cognitive and motivational processes in well-being. Am. Psychoanal. 56 (3), 239–249.
Madera, J.M., 2013. Best practices in diversity management in customer service organizations: an investigation of top companies cited by Diversity Inc. Cornell Hosp. Q. 54 (2), 124–135.
McFadden, C., 2015. Lesbian, gay, bisexual, and transgender careers and human resource development: a systematic literature review. Hum. Resour. Dev. Rev. 14 (2), 125–162.
McFadden, C., Crowley-Henry, M., 2018. 'My people': the potential of LGBT employee networks in reducing stigmatization and providing voice. Int. J. Hum. Resour. Manag. 29 (5), 1056–1081.
Meyer, I.H., 2003. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. Psychol. Bull. 129 (5), 674–697.
Mize, T.D., 2016. Sexual orientation in the labor market. Am. Sociol. Rev. 81 (6), 1132–1160.
Page, K.M., Vella-Brodrick, D.A., 2009. The 'what', 'why' and 'how' of employee well-being: a new model. Soc. Indic. Res. 90 (3), 441–458.
Perales, F., Ablaza, C., Elkin, N., 2020. Exposure to inclusive language and wellbeing at work among transgender employees in Australia. Am. J. Public Health 112 (3), 482–490.
Perales, F., Ablaza, C., Tomaszewski, W., et al., 2022. You, me, and them: understanding employees' use of trans-affirming language within the workplace. Sex. Res. Soc. Policy 19, 760–776.
Pichler, S., Ruggs, E., Trau, R., 2017. Worker outcomes of LGBT-supportive policies: a cross-level model. Equal. Divers. Inclusion 36 (1), 17–32.
Poteat, T., Park, C., Solares, D., et al., 2017. Changing hearts and minds: results from a multi-country gender and sexual diversity training. PLoS One 12 (9), e0184484.
Pride in Diversity, 2011. Establishing and maintaining successful LGBT networks in Australian workplaces. In: ACON Health.
Pride in Diversity, 2012. Engaging allies for change: How to engage LGBTI allies for cultural change. In: ACON Health.
Pride in Diversity, 2019. 2020 Australian Workplace Equality Index - national survey data. In: ACON Health & Goldman Sachs.
Rabe-Hesketh, S., Skrondal, A., 2012. Multilevel and Longitudinal Modeling Using Stata, 3rd ed. Stata Press, College Station, Texas.
Sears, B., Mallory, C., Flores, A., et al., 2021. LGBT People's Experiences of Workplace Discrimination and Harassment. The Williams Institute.
Shannon, M., 2021. The labour market outcomes of transgender individuals. Labour Econ. https://doi.org/10.1016/j.labeco.2021.102006.
Waite, S., 2021. Should I stay or should I go? Employment discrimination and workplace harassment against transgender and other minority employees in Canada's federal public service. J. Homosex. 68 (11), 1833–1859.

Waldo, C.R., 1999. Working in a majority context: a structural model of heterosexism as minority stress in the workplace. J. Couns. Psychol. 46 (2), 218–232.
Walsh, L.C., Boehm, J.K., Lyubomirsky, S., 2018. Does happiness promote career success? Revisiting the evidence. J. Career Assess. 26 (2), 199–219.
Wijngaards, I., King, O.C., Burger, M.J., et al., 2021. Worker well-being: what it is, and how it should be measured. Appl. Res. Qual. Life. https://doi.org/10.1007/s11482-021-09930-w.
Wright, T.A., Bonett, D.G., 2016. Job satisfaction and psychological well-being as nonadditive predictors of workplace turnover. J. Manag. 33 (2), 141–160.
Zheng, X., Zhu, W., Zhao, H., et al., 2015. Employee well-being in organizations: theoretical model, scale development, and cross-cultural validation. J. Organ. Behav. 36 (5), 621–644.