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ARTICLE

A latent profile analysis of the nature of social group memberships and their contribution to retirement outcomes

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Abstract

Positive experiences of groups (e.g., the extent to which groups are important and supportive) tend to be associated with better retirement adjustment outcomes. However, group experiences are not always positive, and we know little about their varied contribution to adjustment outcomes. We addressed this gap by exploring the *nature* of social group memberships – in terms of varying positive and negative experiences of groups – to better understand how social group memberships shape retirement adjustment, life satisfaction and mental health. A latent profile analysis (using data from 489 retirees and their membership of 1887 groups) identified four profiles of social group memberships: *optimal* (63%), *slightly straining* (13%), *low-supportive* (18%) and *ambivalent* (6%). Subsequent regression analysis showed that these different profiles of group membership were differentially associated with retirement adjustment outcomes: belonging to more optimal groups was associated with better perceived adjustment, higher life satisfaction and better mental health, while belonging to slightly straining and ambivalent groups contributed to poorer adjustment, lower life satisfaction and greater depression. These findings have implications for theory and practice, not least because they advance our understanding of the diversity of people's group memberships and their contribution to retirement and health outcomes.

KEYWORDS

depression, latent profile analysis, life satisfaction, retirement adjustment, social group memberships, social identity

BACKGROUND

Workforce retirement represents a major life change that can be challenging to navigate. More than 50 years of research have identified various factors that promote and sometimes hinder, successful retirement adjustment. This research shows that social connectedness plays a role in shaping adjustment (Braithwaite & Gibson, 1987; Moriwaki, 1973). Indeed, a systematic review synthesizing nearly two decades of literature on retirement adjustment predictors shows that the positive effect of social integration has strong empirical support. Barbosa et al. (2016) found that greater social integration enhanced retirement adjustment in 63.2% of studies included in the review, and this effect was more impactful than retirement preparation which enhanced adjustment in 56.6% of studies reviewed. However, another finding from this review was that not all social integration is good for retirees. For example, Barbosa and colleagues also highlighted that when retirees interacted exclusively with people from their own age group, this had a negative effect on adjustment (see also Riquelme et al., 1997). What this suggests is that people's experiences of social group connections are not always positive, and they do not always promote better outcomes.

There are various ways in which we interact with others socially (e.g., one-on-one, in social groups, in-person, digitally) and, among these, relationships with social *groups* have been shown to play a key role in shaping people's well-being and adjustment to life change (Haslam et al., 2014; Iyer et al., 2009; Jetten et al., 2009; Jones et al., 2012; Seymour-Smith et al., 2017). Indeed, research shows that when people see themselves as a member of a social group and identify with that group, this can provide the basis for enhanced mental health and well-being in a variety of contexts, that include the life changes brought about by retirement (Haslam et al., 2023; Steffens, Cruwys, et al., 2016). Such groups, when they are a source of positive influence in people's lives, enable what has come to be known as a 'social cure' (Haslam, Jetten, et al., 2018; Jetten et al., 2012). Scholars have noted though, that group memberships are not always positive and can sometimes have unwanted characteristics (e.g., when they are stigmatized, have destructive norms, or are a source of burden or stress) that can be detrimental to health and well-being – in this way, representing a 'social curse' (Këllezi & Reicher, 2012; Postmes et al., 2019). Yet, despite the demonstrated potential of social group connections to backfire, we know little about the various ways in which people experience these social groups and what it is about them that promotes or undermines life-change adjustment (Haslam et al., 2014; Sani et al., 2012; Wakefield et al., 2017, 2019).

Only a handful of studies have looked at people's experiences of groups in the context of life change and so our understanding of the different ways in which groups' impact on adjustment is not well understood. The present study addresses this gap by examining the nature of social group memberships, through a focus on people's various experiences of social group life in the early years of retirement. In doing this, we advance the field by improving our understanding of variety and nuance in people's experiences of groups in retirement and their contribution to life change-adjustment, mental health and life satisfaction.

Contribution of social factors to retirement adjustment

Multiple factors have been found to influence how well people adjust to retirement. The figures suggest that most people experience a smooth transition as they exit the workforce, but a substantive proportion experience problematic adjustment that is difficult to quantify given the influence of a wide range of contextual factors surrounding retirement (e.g., multiple retirement transitions, national differences in retirement policies; Handley et al., 2021). Understanding the basis of these adjustment challenges has been the focus of decades of research resulting in identification of numerous factors affecting the transition (e.g., health status, retirement planning, financial security, work exit conditions). A key factor that has emerged from this literature, and the focus of the present paper, is the role of social engagement and participation in the lead up to, and following, retirement. Research targeting social factors has shown that those who transition well tend to have more social resources at their disposal – through having a

partner or spouse or wider social networks that are generally higher quality in promoting support and participation – and particularly if those resources do not change dramatically (e.g., decline) in retirement (Pinquart & Schindler, 2007; Wang et al., 2011; Yeung, 2018).

While the impact of social resources on outcomes is well documented, existing frameworks relevant to retirement adjustment (e.g., the resource-based dynamic Model, Wang et al., 2011, and the retirement transition adjustment framework, Hesketh et al., 2011, 2015) have placed little attention on the contribution that different types of social connections make to outcomes. For example, and as noted above, we form important relationships with others in groups that we belong to (associated with our work, our neighbourhood and our interests or activities). However, the nature of these relationships can vary considerably across, but also within, individuals in ways that might alter outcomes (e.g., family relationships may be strained for one individual and be positive and supportive for another, or family relationships might be both strained and supportive at different times for the same individual). An explanation for these nuances, does not feature in existing accounts of retirement adjustment, but they are central to the social identity approach on which we focus in the present research.

Social identity approach to retirement adjustment

The social identity approach (derived from *social identity theory* and *self-categorization theory*; Tajfel, 1974; Turner et al., 1987) provides a lens through which social group processes and their positive and negative consequences for adjustment to life change can be better understood. A central proposition of the social identity approach is that group memberships have the capacity to furnish people with *social identities* whereby people perceive themselves and others not just as individuals (in terms of personal identity) but as members of shared social groups in terms of 'we' and 'us' (Tajfel, 1974; Tajfel & Turner, 1979; Turner et al., 1994). Social identity is therefore the key ingredient that allows people to psychologically internalize their group memberships to become part of their sense of self. Moreover, the social identity approach argues that when a particular group membership is salient in a given context and people identify with that group (e.g., so that they see themselves as *us* psychologists, *us* members of the Smith family, *us* retirees) – then they align their thoughts, feelings and behaviours with the values and norms associated with that particular social identity (Turner et al., 1987). Group memberships and associated social identities therefore become a basis for social influence that is critical in the delivery of a range of other important resources (e.g., support, control, meaning; Turner, 1991).

The social identity framework has since been applied to understanding the role that group memberships play in health and well-being, as described in the social identity approach to health (SIAH, Haslam, Jetten, et al., 2018; Jetten et al., 2012). Critical here is the idea that the health-related benefits, or costs, of a particular group membership will vary to the extent that people *identify* with that group – the more strongly people identify with a group, the greater their influence on health and well-being (Haslam, Jetten, et al., 2018). The SIAH argues that a key factor in explaining these effects lies in the capacity for groups to function as psychological resources. In particular, evidence shows that in particular contexts group membership can provide people with a sense of meaning and connection (Cruwys et al., 2014; Wegge et al., 2006), personal control (Gleibs et al., 2014; Greenaway et al., 2015), self-esteem (Jetten et al., 2015), collective efficacy (Junker et al., 2019) and social support (Haslam et al., 2012; Levine et al., 2005; Sani et al., 2012; Wakefield et al., 2011) – all of which are known contributors to better health (Haslam, Jetten, et al., 2018).

Moreover, if one's sense of belonging to a single group has this capacity then, arguably, belonging to *multiple* social groups is especially beneficial because this increases a person's access to more health-promoting resources (Haslam, Jetten, et al., 2018). Supporting this, research has found that multiple group membership can promote better psychological and physical health in a variety of contexts (Benish-Weisman et al., 2015; Ysseldyk et al., 2013), that includes periods of significant life change. To illustrate, multiple group memberships are associated with less depression following brain injury (Kinsella et al., 2020), can promote resilience and recovery in the face of physical

trauma (Jones & Jetten, 2011), support adjustment in high school students transitioning to university (Greenaway et al., 2016; Iyer et al., 2009; Iyer & Jetten, 2011), enable recovery from addiction (Best et al., 2016), and protect against the development of, and relapse from, depression (Cruwys et al., 2016). In the retirement context, research shows that multiple group memberships prior to retirement are associated with reduced depression, and better perceived physical health, psychological health, well-being and adjustment to retirement (Haslam et al., 2023; Haslam, Lam, et al., 2018; Lam et al., 2018, 2019; Steffens, Cruwys, et al., 2016). However, while this research has largely focused on the *positive* contribution of group memberships and associated social identities to health and adjustment, an important question that remains is when and what forms of group memberships may undermine people's health and well-being.

The SIAH argues that people's health and well-being is affected by the state and circumstances of the groups they identify with (Haslam, Jetten, et al., 2018). Supporting this, we can identify at least three important ways in which group memberships can influence health and well-being – arising as a consequence of (a) *how we feel about the group*, (b) *what we do as group members,* and (c) *how we relate to each other as members of the group*. First, when people identify with groups that are highly stigmatized (e.g., racial minority groups, mental illness groups), they can face significant discrimination which, in turn, can negatively impact their mental health and well-being (Branscombe et al., 1999; Crabtree et al., 2010; Crocker & Major, 1989; Pascoe & Smart Richman, 2009). A second way in which groups can influence health and well-being is through their norms and values, which may encourage more or less health-protective behaviour. Groups with destructive norms (e.g., that promote engagement with substance use or unhealthy lifestyles, that discourage the seeking of support, or that endorse health-harming beliefs; Dingle et al., 2015; Këllezi & Reicher, 2012; Oyserman et al., 2007) can be problematic, as people who identify strongly with such groups will seek to enact the norms and values associated with that group's identity (Haslam, Jetten, et al., 2018). Relatedly, there is evidence that norm violation, whether it is positive or destructive to health (e.g., to refuse alcohol when in the company of a heavy drinking group or failing to wear a mask during COVID-19 restrictions), can result in social exclusion or social sanctions (e.g., finding that previously available social support becomes unavailable; Këllezi et al., 2023; van Kleef et al., 2015). Finally, a third way in which groups can undermine health and well-being is by contributing to people's experience of the group and its members as uncomfortable or aversive. For example, group memberships can have negative consequences when they are a source of burden, stress, abuse or neglect, or are perceived to be unsupportive (Haslam et al., 2012; Haslam & Reicher, 2006; Këllezi & Reicher, 2012; Oyserman et al., 2007).

Previous research investigating negative consequences of group membership has tended to focus on vulnerable populations (a) in contexts of war, rape, incarceration, immigration detention and other highly traumatic experiences (Haslam & Reicher, 2006; Këllezi et al., 2019; Këllezi & Reicher, 2012; Muldoon et al., 2019; Reicher et al., 2006) and (b) in the health context, as seen among those experiencing eating disorder (Cruwys, Platow, et al., 2016), addiction (Dingle et al., 2015) and mental illness (Crabtree et al., 2010). As such, we know little about potentially negative experiences of groups in healthy samples and in more everyday contexts, including life-change adjustment. Furthermore, despite these findings that a given group membership can enhance or undermine health, we have limited insight into how people make sense of and experience their multiple groups that they belong to and how these experiences are associated with well-being and adjustment.

The nature of experiences of groups in retirement

Previous research has begun to uncover the characteristics and nature of group memberships and their influence on health in the context of retirement (Bentley et al., 2020; Haslam et al., 2023; Haslam, Lam, et al., 2018; Steffens, Cruwys, et al., 2016; Steffens, Jetten, et al., 2016). However, the focus of this work has been largely on the impact of more *positive* perceptions of their groups – as gauged by group importance or support. For example, Steffens, Cruwys, et al. (2016) examined the role of group importance in

the context of retirement and found that the more social groups retirees belonged to post-retirement, the more satisfied they were with the retirement transition, and the better their self-reported health and quality of life. Evidence for these relationships was found both for the number of groups that retirees belonged to as well as the number of *highly important* groups. Additionally, the authors sought to examine whether *provision* and *receipt* of social support explained the beneficial effects of multiple group belonging. Results showed that provided social support – more so than received social support – accounted for the relationship between multiple group membership and quality of life, as well as between multiple group membership and subjective health. These findings suggest that groups provide people with opportunities to support others and to the extent that they do, this supports people's health and well-being in retirement.

However, social support and importance are clearly only two of many facets of people's experiences of social group memberships. In their study, Bentley et al. (2020) asked retirees to rate their experiences of groups based on *positivity* (i.e., how positive people felt of each group), *representativeness* (i.e., how prototypical people felt of each group), *supportiveness* (i.e., extent of support received from each group), and *compatibility* (i.e., the ease with which one can manage their membership of several groups simultaneously) and examined their associations with adjustment. Results showed that all four indicators of group experiences were significantly positively associated with life satisfaction and retirement adjustment. Moreover, when people experienced higher levels of all four of these group experiences – to make up what the authors referred to as a *supergroup* – this predicted better outcomes. The more supergroups people had in their network the better their adjustment outcomes. As this suggests, when people's experiences of groups are highly positive this is especially beneficial in supporting adjustment to life change. Nevertheless, the insights we can glean from these previous studies are limited not least because they provide us with a narrow view of people's experiences of groups in retirement. To address this limitation we investigate the full range of experiences people have with their groups, including those that may be experienced as less fulfilling or even toxic, and consider their potential implications for well-being, mental health and adjustment.

The present study

Previous research highlights the importance of multiple group memberships for retiree health and well-being. However, we have little insight into how retirees experience the different groups that they belong to and how variation in people's experiences of their group memberships contributes to retirement outcomes. This gap in knowledge is important in light of research showing that a significant proportion of retirees experience poor health and adjustment (Bossé et al., 1996; Wang, 2007). Moreover, people pay little attention to the social changes brought about by the transition (Taylor & Doverspike, 2003) and are therefore more likely to underestimate the contribution of social groups and their capacity to influence retirement well-being and adjustment.

The present study addresses these issues and advances previous research in two important ways. First, we interrogate the contribution of social group membership in terms of their nature and characteristics – not just the number and quality of the multiple groups that people belong to – on adjustment outcomes. In this context, we explore the contribution of potentially negative and harmful experiences of group membership, alongside the more typically examined positive experiences, given the recognized impact of the former on health and wellbeing outcomes (see Haslam, Jetten, et al., 2018; Haslam, Lam, et al., 2018). For this purpose, we used latent profile analysis (LPA). While this method is typically used to identify clusters or profiles in relation to *people* based on continuous data, we applied the same principles in a new way to identify clusters or profiles of *group memberships* (i.e., level 1), that are nested within people (i.e., level 2) to determine their contribution to retirement adjustment outcomes (see Chawla et al., 2020; Grommisch et al., 2020 for a similar approach). In doing so, the method allows us to explore different types of group experiences by identifying latent or 'hidden' categorical subgroups in the data (Mäkikangas et al., 2018; Spurk et al., 2020). Second, we

also explored to what extent these varying group experiences are beneficial – or potentially harmful – for retirement adjustment, well-being and mental health. To address this, the present study is guided by two primary research questions:

RQ1: What is the nature of retirees' experiences with social groups?
RQ2: What contribution does the nature of group experiences make to retirement adjustment, life satisfaction and mental health outcomes?

METHOD

Supplemental material

Study materials including the full dataset and analysis code are available in the Supporting Information and online via the open science framework [https://osf.io/d3kg4/].

Participants

Participants were Australian residents recruited via Taverner Research, an online market research agency with access to a convenience sample of Australians who had opted-in to receive emails inviting them to take part in consumer research. As the agency did not have data on retirement status or length of retirement, they sent a generic email and screening questionnaire to a subset of their panel (based on age and employment status) who were most likely to meet our primary recruitment criterion of being retired for 5 years or less. An additional requirement was having access to a laptop or computer to complete the study, given our measure of group experience used the online social identity mapping tool (Bentley et al., 2020) that was optimized to work best on these devices. If other mobile devices (laptop, smartphone) were detected, participants were told they remained eligible, but were asked to exit the study and login with a computer or laptop to improve their survey experience. A total of 3374 participants responded to the initial email and were screened for study eligibility. Among these respondents, 507 met the eligibility criterion, though 18 were excluded for not listing at least one social group, failing one or both attention checks (e.g., 'This is a control question. Please choose "4 – A great deal"'), or for not completing the survey to provide the necessary data for analysis.

The final sample comprised 489 participants (i.e., level 2) who were incentivized with points that could be redeemed for money or other rewards. These participants listed 1887 groups (i.e., level 1). This sample size is largely in line with recommendations from Spurk et al.'s (2020) guide for using latent profile analysis and results from Nylund et al.'s (2007) simulation study, suggesting that approximately 500 participants provide a sufficient sample for LPA. Participants had a mean age of 67.16 years (range = 52–83, $SD = 4.21$). Sixty-two per cent of the sample were male. Most participants were fully retired and there was a relatively even split in retirement length. See Table 1 for a detailed overview of participant characteristics including retirement length.

Measures

Group memberships

Group listing and type

Participants first listed up to 10 of their group memberships and specified the type of group by selecting one of 10 options from a prepopulated list. Options included (1) family, (2) friendship, (3) demographic

TABLE 1 Participant characteristics and descriptive statistics.

	N	%
Gender		
Females	186	38.00
Males	303	62.00
Relationship status		
Single	23	4.70
Relationship	11	2.25
Married	366	74.85
Widowed	25	5.11
Separated	13	2.66
Divorced	51	10.42
Education		
None	5	1.02
Secondary school	85	17.38
College	13	2.67
Certificate/Diploma	187	38.24
Undergraduate degree	73	14.93
Graduate degree	126	25.77
Employment status		
Full-time	1	0.20
Part-time	15	3.07
Temporary/casual	41	8.38
On leave	1	0.02
Fully retired	405	82.82
Other	26	5.32
Income		
Less than $10 k	16	3.18
$10 k to $19,999	22	4.46
$20 k to $29,999	58	11.89
$30 k to $39,999	65	13.38
$40 to $49,999	67	13.80
$50 k to $59,999	51	10.40
$60 k or more	210	42.89
Physical health		
Poor	12	2.45
Fair	102	20.86
Good	187	38.24
Very good	156	31.90
Excellent	32	6.54
Length of retirement		
Retired <1 year	66	13.50
Retired 1–2 years	96	19.63
Retired 2–3 years	108	22.09
Retired 3–4 years	111	22.70
Retired 4–5 years	108	22.09

or belief-based, (4) work or professional, (5) recreational, activities, or interests, (6) support, (7) community or neighbourhood, (8) education, (9) volunteer or charity or (10) 'other' (i.e., not listed). These options were determined by the authorship team, who were guided by group types that people commonly report in group listing tasks (Cruwys et al., 2016; Haslam et al., 2008) and feedback from the researchers' social identity lab and research groups (who regularly use group listing tasks in their research) for their appropriateness.

Group experiences

Each group that participants listed were carried through from Qualtrics to an online social identity mapping tool (Bentley et al., 2020) to facilitate collection of group experience data. For each group, participants were asked 20 questions. They were first asked 'overall, how do you feel about each of these groups' on a scale ranging from −5 (very negatively) to +5 (very positively). Responses were significantly negatively skewed, so this item was rescaled as an indicator of *overall group positivity* (from 0 to 4, with higher scores indicating greater positivity). An additional 10 items captured a range of other positive group experiences, while 9 items captured a range of negative group experiences. These were all rated on a 5-point scale ranging from 0 (not at all) to 4 (a great deal). Table 2 presents all items as well as their descriptive statistics.

Retirement outcomes

Retirement adjustment

Retirement adjustment was measured using 13 items from the Healthy Retirement Study (e.g., 'Retirement has been better than I expected'; Wells et al., 2006). Items were scored on a scale ranging from 1 to 5 (strongly disagree to strongly agree) and the scale had acceptable internal consistency ($\alpha = .69$).

Depression

Depression was measured using the 7-item depression subscale taken from the DASS (Lovibond & Lovibond, 1995). This scale asked respondents to indicate how much each item applied to them over the past week. An example item included 'I felt down-hearted and blue'. Scores were measured on a scale from 1 (did not apply to me at all) to 7 (applied to me very much or most of the time). The scale had excellent internal consistency ($\alpha = .93$).

Life satisfaction

Life satisfaction was measured using the Satisfaction With Life Scale (Diener, 2009). Participants rated 5 items on a scale from 1 to 7 (strongly disagree to strongly agree). An example item included 'I am satisfied with my life'. The scale had good internal consistency ($\alpha = .89$).

Participant demographics

We also collected demographic data relating to gender, age, relationship status, perceived physical health (1 = poor, 5 = excellent), highest obtained education level, employment status, socioeconomic status and household income. As data collection took place during the COVID-19 pandemic we also included a single question about the subjective impact of the COVID-19 pandemic on participant responses (i.e., 'To what extent do you think your responses to this survey are affected by your experiences of the COVID-19 pandemic?'), rated on a 7-point scale (1 = not at all, 7 = completely). The average score was below the midpoint ($M = 2.83$; $SD = 1.88$) indicating that the pandemic had little impact and so this item was not included in analysis.

TABLE 2 Factor loadings and communalities based on a principal components analysis with oblimin rotation for 20 items capturing (positive and negative) experiences of group memberships.

Construct	*M*	*SD*	Item	F1	F2	F3	F4
Positivity	3.54	0.56	How do you feel about each of these groups?	.64			
Feel respected	3.23	0.96	How much do you feel respected by people in each of these groups?	.67			
Trust others	3.27	0.94	How much do you trust people in each of these groups?	.63			
Met expectations	3.22	0.93	To what extent do each of these groups meet your expectations?	.64			
Belonging	3.26	0.97	How much do you feel like you belong to each of these groups?	.66			
Get along with others	3.40	0.81	How much do you get along with the people in each of these groups?	.79			
Close with others	3.08	1.01	How much do you enjoy belonging to each of these groups because you are close with many other group members?	.56			
Contact satisfaction	3.01	1.01	To what extent are you satisfied with the amount of contact you have with people in each of these groups?	.40			
Feel empowered	2.72	1.19	To what extent do you feel empowered by each of these groups?	.34			
Support provided	2.74	1.11	How much support do you provide to each of these groups?		.87		
Support received	2.64	1.16	How much support do you receive from each of these groups?		.69		
Negative support	0.38	0.84	How much do you feel like the support you receive from each of these groups is unwanted or unhelpful?			.27	
Tension among others	0.69	0.92	How much tension is there among people within each of these groups?			.72	
Feel exploited	0.41	0.82	To what extent do you feel like you are being taken advantage of in each of these groups?			.56	
Feel drained	0.56	0.93	To what extent does it feel emotionally draining to be part of each of these groups?			.67	
Try to avoid people	0.48	0.85	To what extent do you try to avoid certain people in each of these groups?			.55	
Feel criticized	0.42	0.77	How much do you feel you are criticized by people in each of these groups?			.57	
No voice	0.68	1.08	How much do you feel like you do not have a voice in each of these groups?				.38
Feel not good enough	0.28	0.67	To what extent do people in each of these groups make you feel like you are not good enough?				.72
Feel neglected	0.43	0.80	To what extent do you feel neglected by each of these groups?				.46

Note: Factor loadings < .30 are suppressed. A four-factor structure for 20 items was evident, based on a principal components exploratory factor analysis with an oblimin rotation, which assumes factors are correlated.

Procedure

The study was approved by the Human Research Ethics Committee of the authors' institution (approval number 2019002587). Following eligibility checks and agreement to take part in the study, participants were presented with a brief informational page which described the broad range of groups that can be a part of a person's life (e.g., family, friendship, work, support, community, demographic) and included specific examples of these (e.g., extended family, church community, Australian, dog park friends). Participants then listed up to 10 of their social group memberships and categorized their type (e.g., work, family, demographic). Following this, participants were presented with 20 questions about the nature of their experiences of each group (the order was randomized). Participants then responded to the retirement outcome measures of adjustment, depression and life satisfaction and demographic questions before they were debriefed about the study.

ANALYSIS PROCEDURE AND RESULTS

Group descriptive statistics and analytical procedure

Descriptive and exploratory factor analyses were conducted using R software (version 1.4.1717) and latent profile analyses were conducted in Mplus 8.7. In total, participants listed 1887 groups ($M = 3.89$; $SD = 2.29$; ranging from 1 to 10), exceeding the recommended (minimum) sample size of 500 noted earlier given our primary analysis was at the group level. Participants indicated that they belonged to all kinds of groups, with activity groups being the most frequently listed (27%), followed by family (18%) and friendship groups (18%).

The results below are reported in three stages. First, we report findings from an exploratory factor analysis (EFA) which was used to identify similar experiences by reducing the large number of items (i.e., 20) into similar group experiences (factors) and thus improve interpretability of the latent profile analysis.[1] Second, to address RQ1, we report findings from a latent profile analysis of the resulting factors of group experiences (i.e., at the level of social group memberships) to identify patterns in the nature of group memberships and assign groups to a particular profile based on most likely fit. Such an approach, where measures are nested within people, has been used previously (Chawla et al., 2020; Grommisch et al., 2020). Finally, to address RQ2, we report findings from regression models examining the contribution of participants' groups (i.e., their groups' profile memberships) on retirement adjustment, life satisfaction and depression.

Exploratory factor analysis

EFA was conducted on the 20 items that captured positive and negative experiences of group membership. Items varied significantly in their correlation with one another ($rs = .06–.64$), suggesting reasonable factorability (see Supporting Information for correlation matrix between group variables). The data met all factor analysis assumptions (i.e., the Kaiser–Meyer–Olkin measure of sampling adequacy was .95, suggesting the sample size was adequate for factor analysis and Bartlett's test of sphericity was statistically significant, $p < .001$, indicating the data were normally distributed). Parallel analysis using principal axis factoring was first used to explore the factorability of the data (Çokluk & Koçak, 2016; Horn, 1965). This method, in addition to visual inspection of the scree plot showing eigenvalues of principal factors, indicated that 3 or 4 factors would be appropriate to

[1]We initially conducted the latent profile analysis with all 20 indicators of group experiences, though the number (and richness) of indicators made the profiles difficult to interpret. Nevertheless, this analysis strategy provides a more nuanced insight into retirees' experiences of groups and thus we include the analysis code and corresponding graph of the profiles that emerged in the Supporting Information.

extract. Following this, a principal components exploratory factor analysis with oblimin rotation based on $N = 1887$ complete observations revealed a four-factor structure (see Table 2 for factor loadings). Of these, two factors descriptively captured a range of positive group experiences (which were labelled 'connection' and 'support') and the remaining two factors grouped several negative group experiences (these were labelled 'rejection' and 'strain'). Descriptive statistics for the four factors are reported in Table 3.

Latent profile analysis

LPA is a modelling analysis that is capable of identifying 'hidden' or latent categorical profiles in the data (Williams & Kibowski, 2016). Profile assignment is determined by probabilities which estimate most likely profile membership based on a certain set of continuous or ordinal variables (often called LPA indicators; Spurk et al., 2020). LPA is often used to classify *people* according to patterns of responses to certain variables. To address RQ1, we conducted LPA at the group level (level 1) to identify patterns in the nature of retiree group memberships using the group factors extracted from the factor analysis above – connection, support, rejection and strain – as latent indicators of the LPA. All LPA analyses were conducted using Mplus 8.7 (Muthén & Muthén, 1998–2017). As the number of latent profiles was unknown, we first tested between 1 and 10 profiles to identify the model which had the best fit (see Table 4 for model fit summaries). In doing this, results suggested that the maximum number of profiles tested produced the best fit and recommended estimating more profiles (i.e., the 10-profile model had the lowest AIC and BIC). This was likely due to the richness of the continuous data in the model. We therefore examined the *magnitude of BIC and AIC decline* to identify the model with the lowest decline in each of these fit indices. This approach suggested use of a 5-profile model that was subsequently reduced to a 4-profile model as this comprised the majority of group experiences and had better theoretical fit. Also, in the 5-profile solution one of the profiles contained a small number of cases (3%), which was removed in the 4-profile solution to avoid the possibility of lower power and precision relative to the other profiles and to provide a more parsimonious solution (Spurk et al., 2020). Table 5 summarizes the descriptive statistics of each profile, while Figure 1 illustrates the profile patterns. Moreover, percentages corresponding to the proportion of group types for each profile are illustrated in Figure 2. Even though our focus was on the nature of group memberships, we also conducted additional multi-level LPA analysis at the level of participants. These findings were largely consistent with our original analysis and are both summarized below in Supplementary Analyses and reported in detail in the Supporting Information.

Profile 1: 'Ambivalent' groups

'Ambivalent' Groups (Profile 1; $N = 113$) contained groups of moderate (slightly below the mid-point) levels of connection and support, and moderate (slightly above the mid-point) levels of strain and rejection. Groups with this profile contained higher values in negative group experiences than groups corresponding to other profiles. Ambivalent groups were the least prevalent of all groups that retires belonged to, comprising 6% of all groups listed. Most of the groups in this profile were family (24%), followed by activity groups (20%) and volunteer groups (16%).

Profile 2: 'Slightly straining' groups

'Slightly straining' groups (Profile 2; $N = 246$) generally captured positive experiences but also somewhat higher levels of negative experiences than some of the other profiles (particularly 'optimal' groups).

TABLE 3 Summary of descriptive statistics for the four factors identified by factor analysis.

	No. of items	*M*	*SD*	Range	Skewness	Kurtosis	Cronbach's α
Factor 1: Connection	9	3.19	0.70	0.67–4	−0.95	3.33	.90
Factor 2: Support	2	2.69	1.03	0–4	−0.48	2.44	.78
Factor 3: Strain	6	0.49	0.63	0–3.83	1.67	5.85	.83
Factor 4: Rejection	3	0.47	0.69	0–3.67	1.75	6.05	.76

TABLE 4 Latent profile analysis statistics for 2–6 estimated profiles.

Estimated number of profiles	Log-likelihood	AIC	BIC	BLRT	BLRT (*p*-value)	Entropy
2	−7375.01	14,776.02	14,848.07	2221.67	<.001	0.91
3	−6897.30	13,830.58	13,930.35	955.43	<.001	0.85
4	−6618.98	13,283.95	13,411.44	556.63	<.001	0.88
5	−6298.13	12,652.25	12,807.45	641.70	<.001	0.90
6	−6194.71	12,455.41	12,638.32	206.84	<.001	0.87

Note: Fit indices for estimated profiles 1 and 7–10 are not reported. AIC = Akaike's information criterion (based on −2 log-likelihood and penalized by number of parameters); BIC = Bayesian information criterion (based on −2 log-likelihood and penalized by the number of parameters, adjusted by sample size); BLRT = bootstrapped likelihood test; Entropy = a measure of uncertainty, where 1 indicates complete certainty of profile classification.

TABLE 5 Descriptive statistics as a function of profile assignment.

	Profile 1: Ambivalent groups	Profile 2: Slightly straining groups	Profile 3: Optimal groups	Profile 4: Low-supportive groups
Group-level descriptives				
Number of groups	113 (6%)	246 (13%)	1183 (63%)	345 (18%)
Most frequent group type	Family (24%)	Family (26%)	Activities (27%)	Activities (35%)
Participant-level descriptives				
Mean no. groups listed (*SD*)	0.23 (0.59)	0.50 (1.00)	2.42 (2.19)	0.71 (1.11)
Range of groups listed	0–4	0–9	0–10	0–6
Latent indicators				
Mean connection (*SD*)	1.92 (0.13)	3.05 (0.16)	3.58 (0.03)	2.43 (0.11)
Mean support (*SD*)	1.86 (0.11)	2.79 (0.19)	3.15 (0.06)	1.37 (0.10)
Mean strain (*SD*)	2.05 (0.24)	1.28 (0.07)	0.19 (0.02)	0.42 (0.04)
Mean rejection (*SD*)	2.22 (0.24)	0.98 (0.12)	0.15 (0.01)	0.55 (0.08)

More specifically, these groups were characterized by relatively high levels of connection and support, but what separated this type of group from others was the presence of some degree of rejection and a slightly more elevated level of strain. Groups in this profile were made up of mostly family (26%), activity (23%) and friendship (16%) groups.

Profile 3: 'Optimal' groups

'Optimal' groups (Profile 3; $N = 1183$) comprised the highest number of positive experiences and lowest number of negative experiences. Most of the groups that retirees belonged to were optimal groups,

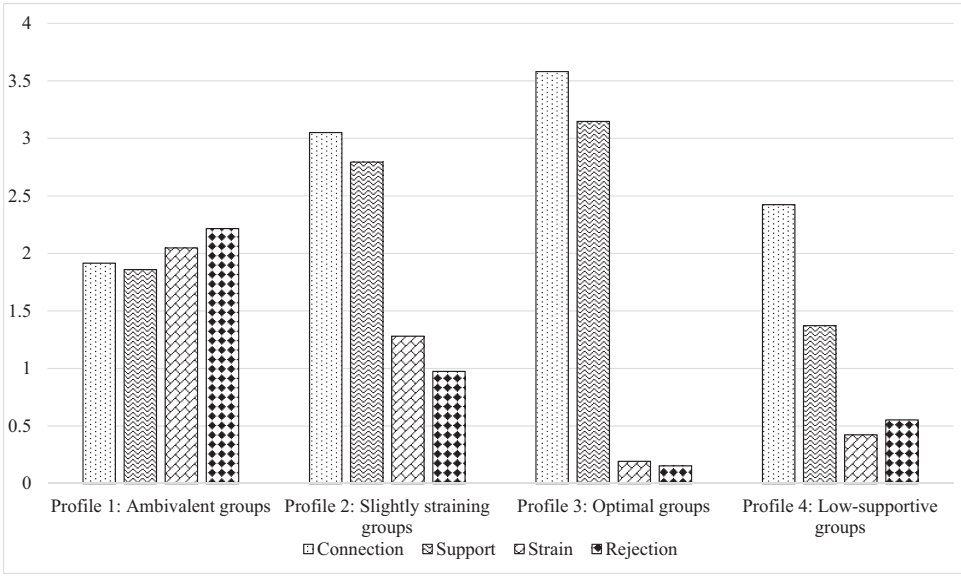

FIGURE 1 Profiles of groups displaying the mean of connection, support, strain and rejection for each latent profile.

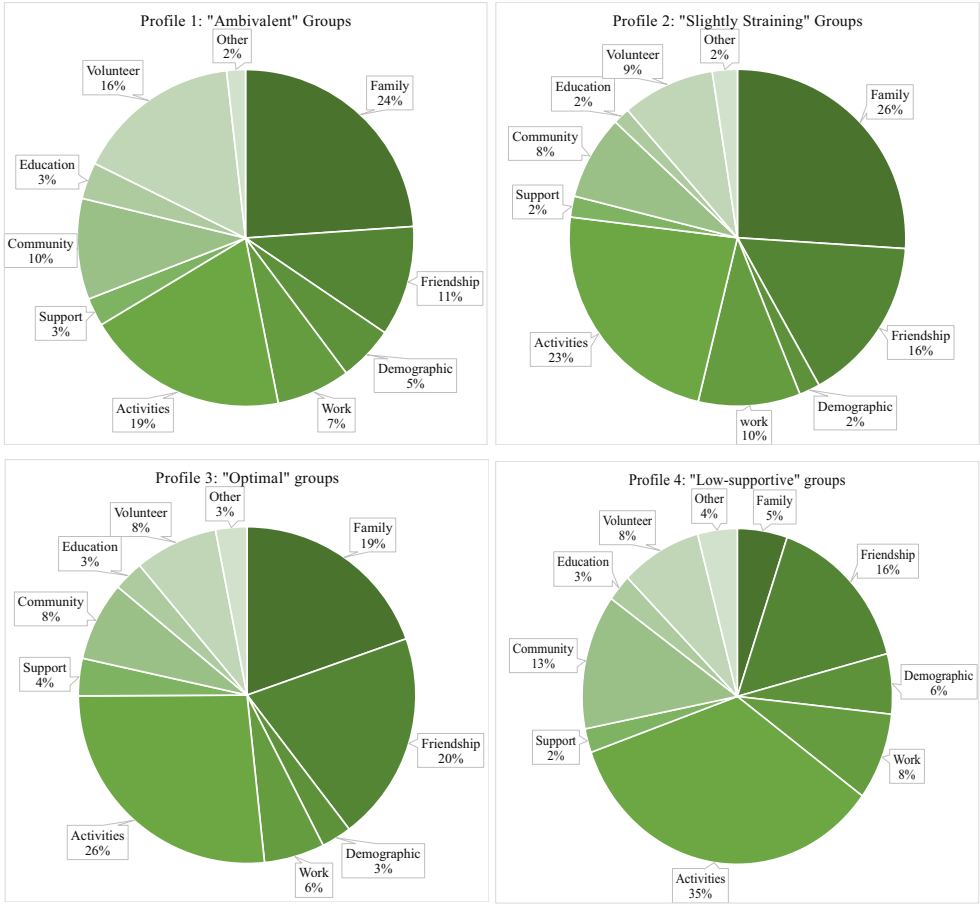

FIGURE 2 Pie charts illustrating the proportion of group type for each profile.

representing more than half (63%) of the total number of groups listed. Groups in this profile were mostly activity groups (27%), followed by friendship (20%) and family (20%) groups.

Profile 4: 'Low-supportive' groups

'Low-supportive' groups ($N = 345$) were those involving relatively low levels of negative experiences, but also relatively low levels of positivity. They comprised moderate levels of connection, but they were distinctive from others in that they were *lowest in support*. Groups in this profile were mostly categorized by participants as activity groups (35%), followed by friendship (16%) and community (13%) groups.

Regression analyses

To address RQ2 (which required participant-level analysis to examine correspondence with retirement and health outcomes), we analysed the data by taking into account that group-specific data were nested within participants. To address this, four new scores were calculated for each participant which tallied the number of groups they listed as a function of group profile assignment so that each participant had a score tallying their (i) total number of ambivalent groups, (ii) total number of slightly straining groups, (iii) total number of optimal groups and (iv) total number of low-support groups (see Table 6 for their correlations with outcomes and key demographic variables). These four variables, tallying the number of groups per profile for each participant, were entered as predictors in multiple linear regression to examine how belonging to more groups of a particular profile predicted retirement adjustment, life satisfaction and depression. See Table 7 for statistics relating to each of the three regression models.

Retirement adjustment

The overall regression model was significant for retirement adjustment, $F(4, 483) = 8.04$, $p < .001$, $R^2 = .06$. Belonging to more optimal groups was associated with significantly better retirement adjustment ($\beta = .17$, $t = 3.69$, $p < .001$). On the other hand, belonging to more ambivalent groups was associated with significantly poorer retirement adjustment ($\beta = -.12$, $t = -2.65$, $p = .008$). Belonging to slightly straining groups or low-supportive groups was not associated with retirement adjustment (ps > .282).

Life satisfaction

The overall regression model was also significant for life satisfaction, $F(4, 483) = 17.47$, $p < .001$, $R^2 = .13$. Belonging to more optimal groups was associated with significantly better life satisfaction ($\beta = .31$, $t = 6.76$, $p < .001$). Also, belonging to ambivalent groups was associated with the worst life satisfaction ($\beta = -.14$, $t = -3.25$, $p = .001$). No other profile memberships were significantly associated with life satisfaction (ps > .584).

Depression

Finally, the overall regression model for depression was significant, $F(4, 484) = 15.04$, $p < .001$, $R^2 = .11$. Belonging to more optimal groups was significantly associated with lower depression ($\beta = -.16$, $t = -3.50$, $p < .001$). However, belonging to more ambivalent groups was significantly associated with greater depression ($\beta = .25$, $t = 5.69$, $p < .001$). No other profile memberships were significantly associated with depression (ps > .446).

TABLE 6 Correlations between total number of groups (as a function of profile assignment), retirement length, gender (0 = women, 1 = men), retirement adjustment, life satisfaction and depression.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Total ambivalent groups	0.23	0.59								
2. Total slightly straining groups	0.50	1.00	.15**							
3. Total optimal groups	2.42	2.19	−.19**	−.31**						
4. Total low-supportive groups	0.71	1.11	−.03	−.04	−.09*					
5. Retirement length	3.20	1.35	.04	.01	.01	−.06				
6. Gender	0.62	0.49	−.01	−.04	−.14**	−.02	.11*			
7. Retirement adjustment	3.26	0.54	−.16**	−.12**	.21**	−.02	.06	.04		
8. Life satisfaction	4.86	1.19	−.20**	−.10*	.33**	.00	−.01	−.02	.50**	
9. Depression	1.34	0.53	.29**	.12**	−.21**	−.03	.01	−.10*	−.46**	−.54**

*$p < .05$. **$p < .01$.

TABLE 7 Results of the regression analysis for retirement adjustment, life satisfaction and depression.

	β	*SE*	*t*	*p*
Retirement adjustment				
Total no. of ambivalent groups	−.12	0.04	−2.65	.008
Total no. of slightly straining groups	−.05	0.04	−1.10	.28
Total no. of optimal groups	.17	0.01	3.69	<.001
Total no. of low-supportive groups	−.01	0.02	−0.32	.753
Life satisfaction				
Total no. of ambivalent groups	−.14	0.10	−3.25	.001
Total no. of slightly straining groups	.02	0.05	0.40	.686
Total no. of optimal groups	.31	0.03	6.76	<.001
Total no. of low-supportive groups	.02	0.05	0.55	.584
Depression				
Total no. of ambivalent groups	.25	0.04	5.69	<.001
Total no. of slightly straining groups	.03	0.02	0.72	.472
Total no. of optimal groups	−.16	0.01	−3.50	<.001
Total no. of low-supportive groups	−.03	0.02	−0.76	.446

Note: Standardized coefficients are reported.

Supplementary analyses

As a supplementary analysis we conducted a multi-level LPA to consider any effects that the nested structure of our data may have on our profile analysis (i.e., given group data were nested within people). Following the recommendations of Mäkikangas et al. (2018), we first tested for variation in the relative size of group profiles (level 1) across people (level 2) and found these differed significantly between people, suggesting that people varied in the degree to which they experienced each group profile type. We then estimated level 2 (i.e., person) profile types, based on the relative frequency of level 1 (i.e., group) profile types and found greatest support for a 3-profile solution at level 2, characterized by people with mostly optimal groups (46.8%), a cluster of participants who had mostly low-supportive groups (36.6%), and a final cluster of participants who had mostly slightly straining groups but also the largest proportion of ambivalent groups (16.6%, see Figure S1). These profiles show that participants listed a variety of types of groups based on the profiles we extracted at the group level (see Supporting Information for the findings from the analysis undertaken).

Further supplementary analysis looked at the contribution of level 2 latent profiles (at the person level) to these outcomes. The findings relating to the contribution of optimal groups were essentially replicated, with retirement adjustment and life satisfaction enhanced among early retirees who had mostly optimal group experiences. Similar to findings from the group-level analysis, this analysis indicated that early retirees with mostly low-supportive group experiences – that included the highest proportion of ambivalent group experiences – reported more symptoms of depression. Overall, the findings from these analyses (see Supporting Information) are consistent with those from our group-level analysis, highlighting the role that optimal group experiences, and to some extent ambivalent group experiences, make in predicting retirement outcomes.

DISCUSSION

This exploratory study addressed two research questions. The first sought to better understand the nature of retiree's experiences of group memberships including whether these differed as a function of

their positive and negative experiences. This was addressed via latent profile analysis, which identified four distinct profiles of group experiences – characteristic of optimal (63%), slightly straining (13%), low-supportive (18%) and ambivalent (6%) groups. The second, aimed to determine the contribution of these group profiles to retirement outcomes and here we found some differentiating effects of group experience, showing effects of small to moderate magnitude (with significant standardized coefficients varying between .14 and .31). Optimal groups were clearly the highest in positivity (defined by providing the highest levels of connection and support) and the lowest level of negative experiences (defined by low levels of strain and rejection). In contrast, ambivalent groups provided moderate levels of connection and support. However, they were also the most negative of the four profiles, owing to these having the highest degree of strain and rejection experiences. Slightly straining and low-supportive groups contained a mix of positive and negative experiences. Slightly straining groups were characterized by moderate-to-high levels of connection and support, but also had somewhat elevated levels of strain and rejection (with higher levels of strain and rejection than those found in optimal and low-supportive groups). Low-supportive groups were characterized by the lowest levels of support across the four profiles, despite also having only moderate levels of connection and low levels of strain and rejection. Supplementary analysis conducted at the level of participants largely confirmed key findings on the impact of profiles on retirement outcomes, albeit with one profile collapsing straining and ambivalent group experiences.

These findings highlight the variability in the group membership quality experienced by early retiree that ranged from very positive (in the optimal profile) to the relative lack of positivity (in the ambivalent profile). In this, it is worth emphasizing that no profile was predominantly negative. This was not altogether surprising given the sample comprised a non-vulnerable group of healthy retirees. Instead, there were groups which were characterised by a mix of moderately positive and negative experiences. Similarly, no profile was particularly low in connection, though this finding was also not surprising as the social identity approach argues that people need to feel *some* level of connection with their groups in order to perceive themselves as members of them.

Examination of the contribution these group experiences make to retirement outcomes showed that people's experiences of groups were differentially associated with retirement outcomes. Here, belonging to more optimal groups predicted all three outcomes, indicating that having more positively enriching, high-quality groups in retirement (with no negativity) contributes to better adjustment, life satisfaction and mental health. Indeed, the total number of optimal groups was the only factor that was consistently associated with better outcomes. Groups that were defined by their ambivalent nature were negatively associated with retirement adjustment, suggesting that even groups perceived to be moderately positive can undermine retirement outcomes when they also have some degree of negativity. Moreover, having more group experiences that are moderately negative, as observed in the ambivalent group profile, was also associated with increased depressive symptoms. Finally, belonging to more slightly straining groups and belonging to more low-supportive groups had little bearing on outcomes.

Theoretical and practical implications

Taken together, these findings extend previous research by showing that positive group experiences are not the only source of benefit that we derive from group membership – the *lack of negative experiences* also plays a key role in determining whether groups become a resource and contribute to better outcomes. On the other hand, these findings suggest that when slight negativity is experienced in group memberships, then this can be enough to inhibit any curative effects.

More generally, the present research advances previous social cure theorizing by shedding light on what it is about group memberships that contributes to better mental health, well-being and life-change adjustment. Specifically, we find that group memberships can either promote or do little to support these outcomes depending on the nature of people's experiences of them. Where previous

studies have prioritized the contribution of *positive* group experiences (Bentley et al., 2020; Steffens, Cruwys, et al., 2016), this study is among the first to consider the broader nature of people's experiences of groups by exploring both positive and negative experiences of group membership. In doing this, we show that groups with even a slight degree of negativity (i.e., strain) may do little to support adjustment soon after retirement. As such, this study extends our understanding of social group processes – in particular, the role of the nature of different group experiences – in shaping retirement outcomes.

In addition to its theoretical contributions, these findings also have important practical applications for retirement transition programs. Specifically, these findings highlight the need for interventions to recognize the different group experiences that people can have in the retirement transition and how this might shape adjustment and related outcomes. There is a tendency to focus on the positive aspects in non-clinical interventions, and not to explicitly highlight the downsides of social engagement. However, our data suggest that raising people's awareness of the pros and cons of group memberships may help to optimize their social engagement in ways that promote (as opposed to do little for or undermine) their adjustment. As this suggests, it is important that retirement transition programs raise awareness of the diverse and nuanced nature of groups and work strategically with people's group-based social networks in ways that support their mental health, well-being and adjustment, particularly in the early retirement years.

Strengths, limitations and future directions

The present study has three key strengths that extend upon previous research in this field. The first was that it had rich data on group experiences which allowed us to distinguish patterns in the nature of groups, and thus capture nuance in the various experiences of social group memberships. Second, our study employed a previously untapped method (i.e., latent profile analysis paired with regression analysis) to explore the nature of group memberships in retirement. This approach is likely to be useful for understanding particular social group processes in other contexts – for example, in other periods of life change (e.g., becoming a parent, acquiring a brain injury) or in particularly vulnerable populations (e.g., people impacted by trauma, or incarceration). The approach may also provide some direction in managing adjustment. In particular, having distinguished the effects of positive and more negative groups, it would be useful in future research to explore whether the former may help to buffer any effects of the latter on adjustment outcomes. This idea has already been explored in the health behaviour of adolescents in a study showing that stronger identification with some groups (family and school) reduces the odds of drinking, smoking and cannabis use associated with stronger identification with another (i.e., friendship) group (Miller et al., 2016). Finally, a third strength of the study is that the sample comprised individuals who had been retired for no longer than 5 years. This allowed us to examine the nature of group experiences specifically in the context of early retirement adjustment while minimizing the influence of general aging effects.

Nevertheless, there are some limitations worth noting. Importantly, because group classifications are based on the *most likely* profile membership according to patterns of responses to certain variables, latent profile analysis cannot guarantee true profile assignment (Williams & Kibowski, 2016). Similarly, LPA cannot rule out the possibility of spurious profiles due to methodological reasons (e.g., non-normality of the data, non-linearly relationships between latent profile indicators; Spurk et al., 2020; Williams & Kibowski, 2016). Another limitation relates to the challenge in latent profile analysis of avoiding the 'naming fallacy'; wherein the name assigned to profiles does not accurately reflect the complexity of profile membership (Weller et al., 2020). Choosing appropriate labels for the profiles identified in the present study was difficult due to their nuanced differences across a range of more or less positive and negative experiences and so they need to be understood as preliminary.

It is also the case that our study only captured a cross-section of group experiences and outcomes at a single point in time. As we discussed, the nature of people's experiences with groups is not static, and

so it is highly likely – if not inevitable – that such experiences can change over time. Though, notwithstanding this important limitation, this study suggests that to the extent we were able to capture meaningful group experiences, the varying nature of these at a given point in time can be associated with (better or worse) mental health and well-being. Further research will be needed to examine whether the nature of groups has long-lasting effects on these outcomes, though this is complicated by the fact that groups (and people's experiences of them) are likely to change even over short periods of time. Related to this point about data capture, is the fact that we also cannot rule out the influence of other factors on which we have no data (e.g., physical and health status and history) that might impact group experiences as well as retirement outcomes.

Finally, the generalizability of some of our findings might be questioned for two reasons. First, given limitations in our participant demographic data, the income distribution of our sample might be higher than the average retiree which might affect their group membership experiences. However, this is difficult to test without additional data relevant to income (e.g., wealth or balance of people's retirement funds and whether this supports single or couple households, which contribute to determination of financial security in retirees). This highlights the importance of greater interrogation of financial status to understand the wider context of group experiences. Second, whether our findings extend to other groups of people and other life changes is not yet clear and needs to be explored. It seems likely that people in the general population may also have a range of more or less positive and ambivalent group experiences and it is possible that some combination of the profiles we identified through LPA may relate to the experiences of other participants facing other life changes (e.g., leaving school, starting university, parenthood, moving cities). But as our data were drawn from an early retiree sample this remains to be examined in future research.

CONCLUSION

Factors influencing trajectories of retirement adjustment have been the focus of decades of research. Understanding the contribution of people's social group connections, however, has often been overlooked. The present study provided the first quantitative exploration of people's varied experiences of groups and their contribution to retirement adjustment, life satisfaction and depression. This revealed four patterns of groups associated with distinct experiences, which we descriptively labelled: *optimal*, *low-supportive, slightly straining* and *ambivalent* groups. Additional analysis revealed that being a member of these different group types was differentially associated with outcomes important to retirement success, whereby optimal group memberships were most protective across all outcomes, while being a member of more ambivalent groups was associated with higher levels of depression and lower retirement adjustment. Taken together, these findings support the need for greater prioritization of people's experiences of social group memberships, both in research and in practice.

AUTHOR CONTRIBUTIONS

Crystal J. La Rue: Conceptualization; data curation; formal analysis; investigation; methodology; writing – original draft. **Niklas K. Steffens:** Conceptualization; methodology; supervision; writing – review and editing. **Belén Álvarez Werth:** Data curation; formal analysis; writing – review and editing. **Sarah V. Bentley:** Methodology; writing – review and editing. **Catherine Haslam:** Conceptualization; writing – review and editing; supervision; methodology.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in The nature of retirees' social group memberships at https://osf.io/d3kg4/.

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