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Diversity in singlehood experiences: Testing an attachment theory model of sub-groups of singles

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Abstract

Objective: Relationship science has developed several theories to explain how and why people enter and maintain satisfying relationships. Less is known about why some people remain single, despite increasing rates of singlehood throughout the world. Using one of the most widely studied and robust theories—attachment theory—we aim to identify distinct sub-groups of singles and examine whether these sub-groups differ in their experience of singlehood and psychosocial outcomes.

Method: Across two studies of single adults ($N_s=482$ and 400), we used latent profile analysis (LPA) to identify distinct sub-groups of singles.

Results: Both studies revealed four distinct profiles consistent with attachment theory: (1) secure; (2) anxious; (3) avoidant; and (4) fearful-avoidant. Furthermore, the four sub-groups of singles differed in theoretically distinct ways in their experience of singlehood and on indicators of psychosocial well-being.

Conclusions: These findings suggest that singles are a heterogeneous group of individuals that can be meaningfully differentiated based on individual differences in attachment security.

KEYWORDS

attachment theory, security, singlehood, singles, well-being

1 | INTRODUCTION

Why do some people remain single for long periods of time? Remarkably, little research has addressed this question despite two potentially contradictory trends: Most people wish to form a committed romantic relationship at some point in their life (Roberts & Robins, 2000), yet people are increasingly living alone and remaining unpartnered (Fry & Parker, 2021; U.S.

Census Bureau, 2020). Rates of solo-living nearly doubled between 1967 (7.6%) and 2020 (14.4%; U.S. Census Bureau, 2020) and around 35% of the US adult population is reported to be single (i.e., not currently in a romantic relationship; Brown, 2020; Pew Research Center, 2013). Relationship science has developed several theories that explain relationship attraction and factors that predict how people form and maintain secure and satisfying relationships (Finkel et al., 2017; Simpson

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& Campbell, 2013). Little is known about why some people remain single or the factors that undermine versus facilitate single peoples' well-being.

Despite adult attachment being one of the most robust predictors of relationship well-being (Joel et al., 2020), very little research has investigated how adult attachment is relevant to the lives of single people (cf. MacDonald & Park, 2022). The limited work on attachment and singlehood has produced inconsistent results (see Pepping et al., 2018 for a review) but suggests that single people are, on average, more insecure than those in relationships (Chopik et al., 2013). However, there is currently little understanding about (a) the variation among singles, and (b) how distinct attachment orientations can shape singlehood outcomes. Such questions have been considered in recent theoretical work (Pepping et al., 2018) but are yet to be tested empirically.

According to attachment theory, attachment security plays a major role in shaping peoples' expectations and beliefs about close others and predicts a plethora of relationship processes and outcomes (Birnie et al., 2009; Mikulincer & Shaver, 2016). As such, individual differences in attachment security should be useful for understanding beliefs and behaviors related to singlehood. Given that emerging theory and research suggest that singles represent a heterogeneous group of individuals (Girme et al., 2023; Pepping et al., 2018), attachment theory may be an important framework for understanding individual differences among singles. Indeed, Pepping et al. (2018) outlined an attachment theory model of singlehood and reviewed evidence suggesting at least three distinct sub-groups of singles: (a) singlehood due to attachment avoidance; (b) singlehood due to attachment anxiety; and (c) singlehood as a personal choice associated with attachment security. Here, we test (for the first time) whether sub-groups of singles can be identified on the basis of attachment theory, and whether these sub-groups are differentially associated with singlehood experiences and well-being outcomes. We test this attachment framework across two studies of single adults.

1.1 | Adult attachment and heterogeneity among singles

Attachment theory posits that humans have a biologically evolved attachment behavioral system that leads infants to seek and maintain proximity to their primary caregivers (Bowlby, 1973; Mikulincer & Shaver, 2016). Adult attachment is generally conceptualized along two dimensions; attachment anxiety and attachment avoidance (Fraley et al., 2011; Mikulincer & Shaver, 2016). Individuals high in *attachment anxiety* tend to be hypervigilant to cues to rejection and abandonment and crave evidence that they are loved and cared about (Mikulincer & Shaver, 2016).

In contrast, individuals high in *attachment avoidance* mistrust close others' availability, are uncomfortable with intimacy and closeness, and tend to rebuff emotional intimacy (Mikulincer & Shaver, 2016). People who strongly embody elements of both of these attachment patterns are theorized to be high on both attachment anxiety and avoidance, which is often referred to as *fearful-avoidant*. Fearful individuals tend to exhibit strong desire for intimacy and closeness while simultaneously being reluctant and fearful of emotional intimacy and closeness (Park et al., 2019; Simpson & Rholes, 2002). Finally, people low on both attachment anxiety and avoidance are classified as *secure*, characterized by trusting expectations about close others and comfort with closeness and dependence (Mikulincer & Shaver, 2016).

A large and coherent body of evidence reveals attachment security is a positive personal resource in adult romantic relationships, whereas attachment anxiety and avoidance are each associated with processes that undermine the quality and stability of romantic relationships (Mikulincer & Shaver, 2012). Attachment insecurity is associated with greater difficulty establishing relationships (McClure & Lydon, 2014; Schindler et al., 2010), relationship distress in established couples (Mikulincer & Shaver, 2012), and predicts relationship instability (Mikulincer & Shaver, 2012), shorter duration of relationships (Hazan & Shaver, 1987), and places couples at higher risk of relationship break-up (Kirkpatrick & Hazan, 1994). Accordingly, Chopik et al. (2013) found that single people reported greater attachment insecurity (anxiety and avoidance) than those in romantic relationships in a large sample of adults ages 18–70 ($N=86,555$). However, given that singles are a heterogeneous group, comparing singles with partnered individuals will not capture or address the heterogeneity among singles (Girme et al., 2023; Park et al., 2024; Pepping et al., 2018).

Pepping et al. (2018) outlined an attachment theory perspective on singlehood suggestive of at least three distinct sub-groups of singles and proposed that these sub-groups are likely to be differentially associated with life outcomes. Specifically, the authors suggested that there are likely multiple pathways to long-term singlehood. For some, singlehood may result from discomfort with intimacy and closeness (high attachment avoidance), whereas for others, it might reflect underlying anxiety about relationships and difficulties forming stable relationships (high attachment anxiety). For others, singlehood may represent a personal choice or happiness with their status without rebuffing attachment needs (low in attachment avoidance and anxiety). In the sections that follow, we provide an overview of this attachment theoretical model of singlehood, outline the unique characteristics of each sub-group, and highlight probable life outcomes for each group.

1.1.1 | Attachment anxiety and singlehood

One sub-group of singles is likely to remain single because their insecurity and fears of abandonment lead to maladaptive interpersonal strategies that undermine relationship development and maintenance—that is, single people characterized by heightened attachment anxiety (see Pepping et al., 2018; Pepping & MacDonald, 2019). Indeed, attachment anxiety is associated with a range of unhealthy cognitive, behavioral and affective processes. Individuals high in attachment anxiety tend to experience excessive jealousy and suspiciousness of partners, anger when attachment needs are not met, heightened distress during relationship conflict, and exaggerate hurt expressions to pull reassurance from partners (Campbell et al., 2005; Ein-Dor et al., 2010; Mikulincer & Shaver, 2016; Overall et al., 2014). These processes undermine highly anxious individuals' efforts to develop and maintain stable relationships. For instance, anxious individuals are rated as less attractive by potential partners, and less interpersonally appealing by trained observers; these effects are mediated by interpersonal awkwardness, signs of anxiety, verbal disfluencies, and social disengagement (McClure & Lydon, 2014). Even when highly anxious individuals do enter into relationships, these relationships tend to be more unstable and at a higher risk of break-up (Mikulincer & Shaver, 2012).

Remaining single due to the characteristic features of attachment anxiety is likely to be associated with relatively poor psychosocial well-being. Those who are high in attachment anxiety crave intimacy and closeness (Mikulincer & Shaver, 2016) and report less satisfaction with singlehood, more desire for a romantic partner, and lower life satisfaction (MacDonald & Park, 2022). Indeed, in Park et al.'s (2023) research, those who were most strongly motivated toward social connections of all kinds (e.g., romantic, group, and family) were also highest in attachment anxiety. Further, individuals higher in attachment anxiety are likely to report more fear of being single, referring to anxiety and distress about singlehood (Spielmann, MacDonald, et al., 2013), and fear of being single is associated with longing for ex-partners (Spielmann et al., 2015), loneliness and depression (Spielmann, MacDonald, et al., 2013), and more willingness to settle for less responsive partners (Spielmann & Cantarella, 2020; Spielmann, MacDonald, et al., 2013). In sum, this sub-group of singles may acutely feel the absence of a romantic partner.

1.1.2 | Attachment avoidance and singlehood

The next sub-group of singles is likely to remain single because they limit the potential for intimacy and relationship development—that is, single people characterized by

heightened attachment avoidance (see Pepping et al., 2018; Pepping & MacDonald, 2019). Individuals high in attachment avoidance anticipate relationship failure (Birnie et al., 2009), believe they will be hurt in relationships (Baldwin et al., 1993), and therefore avoid situations that may lead to emotional vulnerability (Mikulincer & Shaver, 2016). Attachment avoidance is associated with reduced desire for romantic intimacy, particularly in situations that present a real opportunity for connection (Spielmann, Maxwell, et al., 2013). Individuals high in attachment avoidance express lower commitment in relationships and are more likely to be seeking potential alternative partners when they are in a relationship (Quirk et al., 2015). They distance themselves from partners during interactions (Guerrero, 1996) and display fewer expressions of intimacy and affection (Mikulincer & Shaver, 2016). Finally, avoidant individuals hold more positive attitudes toward casual, emotionless, and uncommitted sex (Brennan & Shaver, 1995; Gillath & Schachner, 2006). These processes are consistent with the strategy of excessive self-reliance to minimize threats associated with intimacy.

Those who are long-term single due to processes associated with attachment avoidance are likely to report poorer psychosocial well-being. Avoidant individuals report that emotionally intimate situations and relationships are relatively low in importance for them (Marks & Vicary, 2016; Mikulincer et al., 2002; Park et al., 2022). There is evidence that individuals with strong motivation for independence as well as low motivation for social relationships of all types tend to be higher in avoidance (Park et al., 2023), and that attachment avoidance is associated with lower desire for a romantic partner (MacDonald & Park, 2022). On the other hand, other research suggests that although highly avoidant individuals may not typically choose highly intimate situations, they do experience positive emotions when they receive the warmth of intimacy (Schrage et al., 2020; Stanton et al., 2017). Thus, although avoidants eschew intimate relationships, there is evidence that they can benefit from intimacy and closeness (Overall et al., 2022). Importantly, the processes that undermine intimacy and closeness in romantic relationships also reduce the potential for intimacy in non-romantic relationships (Mikulincer & Shaver, 2012). This is likely to prevent avoidant individuals from having their attachment needs met in non-romantic relationships (Gillath et al., 2019), and this sub-group of singles is therefore likely to be at greater risk for poor psychosocial well-being.

1.1.3 | Attachment security and singlehood

For some individuals, long-term singlehood may not result from difficulties in romantic relationships; rather, it might represent a satisfying personal and

autonomous choice (as opposed to a defensive denial of intimacy needs)—that is, single people characterized by secure attachment (see Pepping et al., 2018; Pepping & MacDonald, 2019). The notion of chosen singlehood has been discussed previously (DePaulo, 2014; Schachner et al., 2008; Stein, 1978), and the available evidence suggests that some do indeed report choosing to stay single (e.g., Hostetler, 2009; Timonen & Doyle, 2014). The reasons for choosing to be single vary widely from not being ready for commitment, preferring to focus on career pursuits, to a personal preference for solitude and alone time (Apostolou et al., 2020). Nonetheless, the decision to remain single does not mean that close relationships are unimportant. Indeed, the most commonly cited reason for comfort with being single was the presence of meaningful and close connections with family and friends (Spielmann, MacDonald, et al., 2013).

Those who remain single as a personal choice are likely to fare quite well on indicators of psychosocial well-being. For instance, satisfaction with single status is a strong predictor of life satisfaction (Lehmann et al., 2015). Further, secure individuals more readily use the primary attachment strategy of proximity seeking, and they are therefore likely to be motivated to develop and maintain non-romantic relationships and may do so with greater ease compared to their insecure counterparts (Gillath et al., 2019; Mikulincer & Shaver, 2012). Fulfilling interpersonal relationships and broad social ties are well-established predictors of positive psychosocial well-being, less depression, and reduced mortality risk (Cruwys et al., 2013; Holt-Lunstad et al., 2010). Thus, those whose singlehood is a secure personal choice (and have the capacity to have their attachment needs met via non-romantic relationships) should display positive psychosocial well-being.

1.1.4 | Fearful-avoidant attachment and singlehood

The possibility of a fourth sub-group of singles has been previously speculated (Pepping et al., 2018) and warrants brief comment. Most social psychological research assesses attachment along the two dimensions of anxiety and avoidance separately rather than investigating the effects of being high in both attachment anxiety and avoidance, as in the case of the fearful-avoidant attachment style (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2016; Paetzold et al., 2015). The combination of attachment anxiety (fear of abandonment and intense desire for intimacy) and attachment avoidance

(discomfort with intimacy and closeness) may result in contradictory and chaotic behaviors in relationships and is highly likely to undermine the formation and maintenance of romantic relationships (Park et al., 2019). Indeed, evidence suggests that fearful-avoidant attachment has unique effects on sexual and relational processes (Hammonds et al., 2020; Maestre-Lorén et al., 2021) as well as mental health outcomes (Conradi et al., 2018). Thus, it is plausible that there may be a fourth sub-group of singles characterized by both high attachment anxiety and avoidance, though whether the fearful-avoidant style reflects a distinct sub-group of singles with differential life outcomes remains to be tested empirically.

2 | THE PRESENT RESEARCH

Accumulating theory and empirical evidence suggests that attachment theory may be a useful framework for conceptualizing why some people remain single (MacDonald & Park, 2022; Pepping et al., 2018). A finer-grained analysis including a broad array of outcome variables is needed to identify attachment-related sub-populations of singles, and to test whether these discrete groups of singles differ in their experience of singlehood and on indicators of psychosocial well-being. Latent profile analysis (LPA) is a statistical approach that is well suited for examining such heterogeneity as it identifies subgroups of people who share common attributes on a set of indicators. The aim of the present research is to provide an empirical test of Pepping et al.'s (2018) framework by (1) using LPA to identify distinct profiles of singles based on adult attachment; and (2) testing the utility of these profiles by examining whether they are differentially associated with individual difference factors and indicators of psychosocial well-being. We examined these questions in a sample of single adults who were not currently in a romantic relationship (Study 1) and in a sample of longer-term singles who had been single for at least 3 years (Study 2).

3 | STUDY 1

3.1 | Method

3.1.1 | Participants

We pooled data across five datasets with identical procedure and measures to conduct an Integrative Data Analysis (IDA; see Curran & Hussong, 2009) to offer more reliable

meta-analytic results.¹ This technique involves pooling the data using raw scores from constructs, which were assessed identically across the studies and conducting analyses on the pooled dataset, which is recommended over a meta-analyzed effects of separate estimates (see Curran & Hussong, 2009).

Participants were 482 single adults, ranging in age from 18 to 68 years ($M_{age} = 24.55$ years, $SD = 8.19$). Participants were 339 females, 137 males, and 6 participants who identified as gender non-binary or gender fluid. Participants reported their singlehood status as either “single” ($N = 461$, 95.6%) or “separated” or “divorced” ($N = 21$, 4.4%). Participants in subsamples 1A, 1B, 1D, and 1E were also asked how long they have been single; of those who responded ($N = 390$), the mean duration of singlehood was 10.8 years ($SD = 10.81$) ranging from 2 weeks to 57 years. However, this represented a bimodal distribution of individuals who were single for less than 2 years versus single for 20 years or more. The ethnic composition was relatively diverse: participants identified as Asian ($N = 176$, 36.5%), White ($N = 162$, 33.6%), Indian ($N = 64$, 13.3%), Black ($N = 14$, 2.9%), Middle Eastern ($N = 12$, 2.5%), Indigenous ($N = 2$, 0.4%), or other ethnicities such as Hispanic, Greek, and Pakistani ($N = 17$, 3.5%). Finally, 35 individuals (7.3%) identified as bi- or multi-racial.

3.1.2 | Measures

Measures utilized in Study 1 are outlined in Table 1.

3.1.3 | Procedure

Participants were recruited from an upper-level undergraduate psychology course (subsamples 1A, 1B²), a psychology research participation scheme (subsample 1C), or through the community using online advertisements across Canada (subsample 1D & 1E). Participants were reimbursed for taking part in various ways; Participants in subsamples 1A & 1B went into a prize-draw to win 1 of 12 \$50 Amazon e-vouchers. Participants in subsample 1C received credit as part of a research participation scheme. Participants in subsamples 1D & 1E were reimbursed \$25 in Amazon e-vouchers. Participants completed an online baseline survey containing the measures listed in Table 1 (along with other measures and follow-up procedures not germane to this project). All studies received ethical clearance by the University Office of Research Ethics.

3.2 | Results

Means and standard deviations for study variables of interest are presented in Table 1.

3.2.1 | Latent profile analysis

We used Latent Profile Analysis (LPA) in MPlus Version 7.4 to explore underlying group membership of participants based on their responses to items on the Experiences in Close Relationships (ECR) attachment questionnaire. The exploratory analysis is a respondent-focused analytic strategy, which allows for the identification of group-membership for each participant based on their answers to selected variables, thereby clustering individuals with similar results together using unobserved subgroups (Vermunt & Magidson, 2002; Williams & Kibowski, 2016).

We examined fit in one- to five-profile models. Goodness-of-fit indices indicate that a maximum solution of four-profiles was appropriate (see Online Supplementary Materials [OSM] Table S1). Sample-size-adjusted BIC reduced between each profile solution and entropy increased between each profile solution, with the best values identified for a four or five-profile solution. However, improvement in goodness-of-fit between the four- and five-profile solutions was minimal, and Entropy was best with the four-profile solution. Furthermore, a four-profile solution was deemed most theoretically appropriate (Bartholomew & Horowitz, 1991). The four-profile solution had acceptable goodness-of-fit ($BIC = 15,719.319$, $entropy = 0.86$).³

Four profiles were labeled and interpreted based on the LPA results and the underlying attachment theoretical model of singlehood: attachment security; attachment anxiety; attachment avoidance; and fearful attachment (OSM Table S3 presents means on attachment items across the four profiles). The *secure profile* (22.41%) was characterized by respondents who scored low on all items. The *anxious profile* (37.76%) was characterized by respondents who scored high on the attachment anxiety items, but low on the attachment avoidance items. The *avoidant profile* (23.44%) was characterized by respondents who scored low on the attachment anxiety items, but high on the attachment avoidance items. Finally, the *fearful-avoidant profile* (16.39%) was characterized by respondents who scored high on the attachment anxiety and avoidance items. We tested whether the four profiles differed on the attachment dimensions in theoretically meaningful ways (OSM Table S5; OSM Figure S1). As expected, attachment anxiety was highest in the anxious and fearful groups (significantly higher than the secure and avoidant groups),

TABLE 1 List of study variables, including number of items, means, standard deviations, and internal consistency estimates (Study 1).

Variable	Example item	Reference	No. items	M	SD	α	Sub-samples that data are available							
							IA	IB	IC	IE				
Attachment orientation														
Attachment anxiety	"I often worry that people don't really care for me"	Fraley et al. (2011)	3	4.21	1.77	0.89	•	•	•	•	•	•	•	•
Attachment avoidance	"I don't feel comfortable opening up to others"	Fraley et al. (2011)	6	3.56	1.21	0.84	•	•	•	•	•	•	•	•
Individual differences														
Fear of being single	"It scares me to think that there might not be anyone out there for me"	Spielmann, MacDonald, et al. (2013)	6	3.01	1.09	0.86	•	•	•	•	•	•	•	•
Self esteem	"On the whole, I am satisfied with myself"	Rosenberg (1965)	10	4.64	1.25	0.92	•	•	•	•	•	•	•	•
Neuroticism	"I have frequent mood swings"	Sibley et al. (2011)	4	3.97	1.29	0.70	•	•	•	•	•	•	•	•
Relationship pedestal beliefs	"Everyone needs a romantic partner that will be there for them"	Researcher developed	6	2.74	1.20	0.80	•	•	•	•	•	•	•	•
Desire for a relationship	"To what extent do you want to be in a romantic relationship?"	Researcher developed	1	5.06	1.53	–	•	•	•	•	•	•	•	•
Intrinsic motivation	"I am single by choice"	Researcher developed	2	4.27	1.64	0.58 ^a	•	•	•	•	•	•	•	•
Amotivation	"I am single because I cannot be bothered pursuing a relationship"	Researcher developed	1	4.39	1.91	–	•	•	•	•	•	•	•	•
Extrinsic motivation (unable to find partner)	"I am single because I cannot find anyone to be involved with"	Researcher developed	1	4.53	2.01	–	•	•	•	•	•	•	•	•
Extrinsic motivation (unable to find worthy partner)	"I am single because I haven't found anyone worth pursuing a relationship with"	Researcher developed	1	5.38	1.76	–	•	•	•	•	•	•	•	•
Singlehood commonality	"I have a lot in common with other single people"	Adapted Cameron (2004)	6	4.60	1.16	0.81	•	•	•	•	•	•	•	•
Singlehood centrality	"In general, being single is an important part of my self-image"	Adapted Cameron (2004)	7	3.71	1.19	0.77	•	•	•	•	•	•	•	•
Wellbeing indicators														
Life satisfaction	"In most ways my life is close to ideal"	Diener et al. (1985)	5	4.19	1.32	0.88	•	•	•	•	•	•	•	•
Support availability	"There are people I can depend on to help me if I really need it"	Cutrona and Russell (1987)	8	5.72	1.17	0.92	•	•	•	•	•	•	•	•
Autonomy	"I feel free to be who I am"	Adapted La Guardia et al. (2000)	3	4.89	1.23	0.69	•	•	•	•	•	•	•	•
Competence	"I feel like a competent person"	Adapted La Guardia et al. (2000)	3	4.84	1.47	0.80	•	•	•	•	•	•	•	•
Relatedness	"I feel loved and cared about"	Adapted La Guardia et al. (2000)	2/3 ^b	4.43	1.47	0.57 ^a /0.83 ^b	•	•	•	•	•	•	•	•

^aAll scale reliabilities refer to Cronbach's alphas, with the exception of 2-item scales, which reflect Pearson's correlations coefficients.

^bSample 1C included an additional relatedness item "I often feel a lot of distance with those around me".

whereas attachment avoidance was highest in the avoidant and fearful groups (significantly higher than the secure and anxious groups).

3.2.2 | Individual characteristics and psychosocial outcomes associated with sub-groups of singles

Following profile identification, analysis of variance analyses evaluated whether there were differences between each the four sub-groups on a range of demographic variables, individual difference factors, and indicators of psychological well-being. Significant differences between groups were analyzed with ANOVAs where significant effects were classified at $p < 0.003$ to account for the multiple comparisons (i.e., 0.05/18 comparisons) and similarly post hoc tests used Bonferroni corrections. Table 2 displays the results of these analyses, which we describe below. No significant differences emerged for age or duration of singlehood (Table 2). However, there were significant differences between the four sub-groups on a range of individual differences and psychological well-being outcomes.

3.2.2.1 | *Secure profile*

Participants in the secure profile appear to generally fare better than those in the anxious, avoidant, and fearful profiles. Those within the secure profile of singles reported less fear of being single compared to their anxious and fearful counterparts. They also reported greater self-esteem and lower neuroticism compared with anxious, avoidant, and fearful profiles. In terms of singlehood motivation, secure individuals were less likely to be extrinsically motivated compared to fearful individuals. They also reported greater feelings of commonality with other singles compared to avoidant and fearful individuals, and reported that their single status was less central to their identity compared to anxious individuals. Finally, secure individuals reported the highest levels of psychological well-being compared to anxious, avoidant, and fearful counterparts, including greater life satisfaction, availability of social support, autonomy, competence, and relatedness. Interestingly, secure singles did not differ from insecure individuals in their general beliefs about and desire for a relationship and were similar in their intrinsic motivations and amotivation compared to insecure individuals.

3.2.2.2 | *Anxious profile*

Participants in the anxious profile appear to generally fare worse than those in the secure profile, and differed from the avoidant profile on individual characteristics but not well-being outcomes. Specifically, those within the anxious profile reported significantly greater fears of being single

relative to their secure and avoidant counterparts. The anxious group also reported significantly lower self-esteem than secure counterparts (but more self-esteem than the fearful group), and greater neuroticism compared to secure and avoidant counterparts. In terms of singlehood identity, anxious individuals reported that their single status was more central to their identity compared with secure and avoidant individuals, suggesting that their single status may be particularly salient for anxious individuals. Anxious individuals also reported more commonality than the fearful group. Finally, the anxious group was characterized by worse psychological well-being outcomes compared to secure individuals, including lower life satisfaction, support availability, autonomy, competence, and relatedness. The anxious group did not differ from the avoidant group in their well-being outcomes, but reported better outcomes than the fearful group.

3.2.2.3 | *Avoidant profile*

Participants in the avoidant profile appear to generally fare worse than those in the secure profile, but also better than those in the anxious and fearful profiles. Specifically, avoidant individuals reported lower self-esteem and greater neuroticism compared with secure individuals, but higher self-esteem compared with fearful individuals, and lower neuroticism and fear of being single compared to anxious and fearful individuals. Notably, avoidant individuals did not differ in their fears of being single, amotivation, endorsement of relationship pedestal beliefs, or intrinsic motivations for being single compared to secure individuals. In terms of singlehood identity, avoidant individuals reported having less in common with other singles compared to secure individuals, but also reported that their single status was less central to their identity compared to anxious individuals. Finally, avoidant individuals' psychological well-being outcomes (life satisfaction, support availability, autonomy, competence, and relatedness) were worse than secure individuals, no different from anxious individuals, and better than fearful individuals.

3.2.2.4 | *Fearful profile*

Participants in the fearful profile generally displayed worse outcomes than individuals in the secure, anxious, and avoidant profiles. Specifically, fearful individuals reported greater fears of being single and greater neuroticism compared to their secure and avoidant counterparts. Fearful individuals also reported the lowest self-esteem compared to secure, anxious, and avoidant counterparts. Compared to secure and avoidant individuals, the fearful profile reported greater extrinsic motivation for singlehood in regard to being unable to find a partner. In terms of singlehood identity, fearful individuals reported having

TABLE 2 Individual differences and wellbeing split by sub-group (Study 1).

Dependent variable	N	Secure		Anxious		Avoidant		Fearful		ANOVA	η^2
		M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)				
Demographic variables											
Age (years)	482	25.40 (9.29)	24.20 (8.22)	24.33 (7.82)	24.52 (8.19)	$F_{(3, 478)} = 0.52, p = 0.67$				0.00	
Duration of singlehood (years)	390	10.22 (10.25)	10.03 (10.79)	12.10 (11.35)	10.80 (10.81)	$F_{(3, 386)} = 0.85, p = 0.47$				0.01	
Individual differences											
Fear of being single	480	2.57 (1.07)^{b,d}	3.38 (1.02)^{a,c}	2.59 (0.95)^{b,d}	3.40 (1.02)^{a,c}	$F_{(3, 476)} = 24.89, p < 0.001$				0.14	
Self esteem	398	5.60 (0.88)^{b,c,d}	4.40 (1.10)^{a,d}	4.76 (1.15)^{a,d}	3.62 (1.14)^{a,b,c}	$F_{(3, 394)} = 48.11, p < 0.001$				0.27	
Neuroticism	315	3.13 (1.20)^{b,c,d}	4.50 (1.19)^{a,c}	3.71 (1.15)^{a,b,d}	4.42 (1.10)^{a,c}	$F_{(3, 311)} = 24.64, p < 0.001$				0.19	
Relationship pedestal beliefs	364	2.68 (1.17)	2.68 (1.22)	2.61 (1.20)	3.26 (1.07)	$F_{(3, 360)} = 3.82, p = 0.010$				0.03	
Desire for a relationship	251	4.78 (1.68)	5.40 (1.38)	4.84 (1.61)	5.14 (1.35)	$F_{(3, 247)} = 2.65, p = 0.049$				0.03	
Intrinsic motivation	364	4.68 (1.50)	4.07 (1.73)	4.46 (1.54)	3.81 (1.64)	$F_{(3, 360)} = 4.24, p = 0.006$				0.03	
Amotivation	364	4.37 (2.06)	4.20 (1.90)	4.71 (1.72)	4.37 (2.01)	$F_{(3, 360)} = 1.36, p = 0.255$				0.01	
Extrinsic motivation											
Unable to find partner	364	4.11 (2.13)^d	4.76 (2.05)^d	4.19 (1.89)^d	5.24 (1.69)^{a,c}	$F_{(3, 360)} = 4.97, p = 0.002$				0.04	
Unable to find worthy partner	364	5.70 (1.39)	5.36 (1.93)	5.16 (1.70)	5.27 (1.93)	$F_{(3, 360)} = 1.46, p = 0.224$				0.01	
Singlehood commonality	283	5.03 (1.06)^{c,d}	4.64 (1.12)^d	4.46 (1.14)^a	4.01 (1.21)^{a,b}	$F_{(3, 279)} = 7.23, p < 0.001$				0.07	
Singlehood centrality	283	3.42 (1.21)^b	3.97 (1.25)^{a,c}	3.44 (1.05)^b	4.01 (1.06)	$F_{(3, 279)} = 5.25, p = 0.002$				0.05	
Wellbeing indicators											
Life satisfaction	482	4.91 (1.05)^{b,c,d}	4.02 (1.29)^{a,d}	4.24 (1.34)^{a,d}	3.49 (1.22)^{a,b,c}	$F_{(3, 478)} = 21.91, p < 0.001$				0.12	
Support availability	398	6.41 (0.68)^{b,c,d}	5.79 (1.03)^{a,d}	5.67 (1.15)^{a,d}	4.64 (1.24)^{a,b,c}	$F_{(3, 394)} = 39.06, p < 0.001$				0.23	
Autonomy	399	5.62 (0.98)^{b,c,d}	4.71 (1.14)^{a,d}	4.98 (1.17)^{a,d}	4.19 (1.33)^{a,b,c}	$F_{(3, 395)} = 21.73, p < 0.001$				0.14	
Competence	399	5.66 (0.93)^{b,c,d}	4.68 (1.29)^{a,d}	4.90 (1.29)^{a,d}	4.02 (1.27)^{a,b,c}	$F_{(3, 395)} = 24.70, p < 0.001$				0.16	
Relatedness	399	5.49 (1.03)^{b,c,d}	4.21 (1.42)^{a,d}	4.60 (1.34)^{a,d}	3.27 (1.20)^{a,b,c}	$F_{(3, 395)} = 40.41, p < 0.001$				0.24	

Note: Bolding indicates significant one-way ANOVA with Bonferroni adjustment ($p < 0.003$). Superscripts indicate statistical significance in post hoc comparisons with Bonferroni corrections and indicate which groups are significantly different: a—secure; b—anxious; c—avoidant; d—fearful; η^2 —eta squared.

less in common with other singles compared to secure and anxious counterparts, and similar centrality scores to anxious individuals. Finally, fearful individuals reported the lowest psychological well-being outcomes (life satisfaction, support availability, autonomy, competence, and relatedness) compared to secure, anxious and avoidant individuals.

4 | STUDY 2

Study 1 provided initial evidence that singles represent a heterogeneous group of individuals that can be clustered into *secure*, *anxious*, *avoidant*, and *fearful* attachment groups, and that these clusters were associated with theoretically distinct individual characteristics and well-being outcomes. Study 2 aimed to replicate these findings in a sample of older, long-term singles and focused on broader psychosocial outcomes.

4.1 | Method

4.1.1 | Participants

Participants were 400 single adults, ranging in age from 25 to 83 years ($M_{age}=38.55$ years, $SD=12.32$), recruited via Amazon's Mechanical Turk (M-Turk), an online crowdsourcing Web site (Buhrmester et al., 2011). There were 227 females, 172 males, and one participant who did not identify with either gender. For inclusion in the study, participants were required to be aged 25 or older, currently single (i.e., not in a current romantic relationship), and to have been single for at least 3 years, consistent with prior research on long-term singlehood (Schachner et al., 2008).

The mean duration of singlehood was 8.98 years ($SD=10.49$). Most respondents did not have children ($N=281$, 70.3%); of those with children ($N=119$, 29.8%), the mean number of children was 1.97 ($SD=1.12$, range=1–7). The sample included mostly heterosexual individuals ($N=359$, 89.8%). There were 4 gay men (1%), 8 lesbian women (2%), 23 bisexual people (5.8%), 3 asexual individuals (0.8%), and 3 who used another sexual orientation descriptor (0.8%). Regarding ethnicity, most reported a white/Caucasian background ($N=320$, 80%), 35 were African American (8.8%), 23 reported an Asian background (5.8%), and 22 reported other backgrounds (5.4%).

4.1.2 | Measures

Measures administered in Study 2 are outlined in Table 3 and OSM Table S6.

4.1.3 | Procedure

Participants were recruited via Amazon's Mechanical Turk (M-Turk) and were compensated USD \$2 for their participation. Participants completed an online survey containing study measures, and several others that were unrelated to the present study. The study received ethical clearance by the University Human Research Ethics Committee.

4.2 | Results

As in Study 1, we used LPA to explore underlying group membership of participants based on their responses to the ECR attachment scale. Similar to Study 1, goodness-of-fit indices indicate that a maximum solution of four-profiles was appropriate (see OSM Table S1). The four-profile solution had acceptable goodness-of-fit ($BIC=17,857.40$, $entropy=0.89$).⁴ Four profiles were therefore labeled and interpreted based on the LPA results and the underlying attachment theoretical model of singlehood: attachment security; attachment anxiety; attachment avoidance; and fearful attachment (OSM Table S4 presents means on attachment items across the four profiles). The *secure profile* (22.75%) was characterized by respondents who scored low on all items. The *anxious profile* (37.25%) was characterized by respondents who scored high on the attachment anxiety items, but low on the attachment avoidance items. The *avoidant profile* (11.5%) was characterized by respondents who scored low on the attachment anxiety items, but high on the attachment avoidance items. Finally, the *fearful profile* (28.5%) was characterized by respondents who scored high on the attachment anxiety and the attachment avoidance items.

We tested whether the groups differed in attachment anxiety and avoidance (OSM Table S5; OSM Figure S2). As expected, attachment anxiety was highest in the anxious and fearful groups (significantly higher than the avoidant and secure groups). Attachment avoidance was highest in the avoidant and fearful groups (significantly higher than the secure and anxious groups).

4.2.1 | Individual characteristics and psychosocial outcomes associated with sub-groups of singles

There were significant differences between the four sub-groups on a range of demographics, individual difference factors, and psychological outcomes. Table 4 displays the results of the ANOVAs testing group differences. Significant effects were classified at $p<0.002$ to account for multiple comparisons (i.e., 0.05/28 comparisons), and post hoc tests used Bonferroni corrections examining differences between profile memberships.

TABLE 3 List of study variables, including number of items, means, standard deviations, and internal consistency estimates (Study 2).

Variable	Example questions	Reference	No. items	M	SD	α
Attachment orientation						
Attachment anxiety	"My desire to be very close sometimes scares people away"	Wei et al. (2007)	6	3.70	1.41	0.85
Attachment avoidance	"I turn to people for many things, including comfort and reassurance" (reversed)	Wei et al. (2007)	6	3.40	1.16	0.77
Individual differences						
Fear of being single	"It scares me to think that there might not be anyone out there for me"	Spielmann, MacDonald, et al. (2013)	6	2.66	1.21	0.90
Emotion dysregulation	"I experience my emotions as overwhelming and out of control"	Gratz and Roemer (2004)	36	2.57	0.58	0.95
Hurt proneness	"My feelings are easily hurt"	Leary and Springer (2000)	6	2.95	1.03	0.89
Social anxiety	"I fear people in authority"	Connor et al. (2000)	17	2.24	1.00	0.95
Sexual system deactivation	"During sexual activity, I sometimes feel uninvolved and uninterested"	Birnbaum et al. (2014)	12	2.92	1.13	0.90
Sexual system hyperactivation	"I need a lot of reassurance regarding my sexual performance"	Birnbaum et al. (2014)	12	3.50	1.25	0.90
Social approach motivation	"I try to deepen my relationships with my friends"	Elliot et al. (2006)	4	4.62	1.51	0.95
Social avoidance motivation	"I try to make sure nothing bad happens in my relationships"	Elliot et al. (2006)	4	4.93	1.38	0.86
Hypersensitive narcissism	"I often interpret the remarks of others in a personal way"	Hendin and Cheek (1997)	10	2.68	0.80	0.85
Grandiose narcissism	"I will never be satisfied until I get all that I deserve"	Gentile et al. (2013)	13	3.11	2.97	0.78
Empathy	"I am good at predicting how someone will feel"	Loewen et al. (2010)	8	2.97	0.58	0.82
Desire for relationship	"I want to be in a romantic relationship"	Researcher developed	1	2.94	1.01	–
Future relationship desire	"At some point in my life, I wish to enter into a romantic relationship"	Researcher developed	1	3.30	0.90	–
No need for relationship	"I do not need a romantic relationship"	Researcher developed	1	2.25	1.03	–
Wellbeing indicators						
Depression	"I felt down-hearted and blue"	Lovibond and Lovibond (1995)	7	5.50	5.65	0.94
Anxiety	"I felt I was close to panic"	Lovibond and Lovibond (1995)	7	3.26	3.92	0.87
Loneliness	"How often do you feel that you lack companionship?"	Hughes et al. (2004)	3	1.97	0.69	0.88
Meaning in life	"My life has a clear sense of purpose"	Steger et al. (2006)	10	4.33	1.01	0.75
Satisfaction with life	"I am satisfied with my life"	Diener et al. (1985)	5	3.81	1.74	0.94
Suicidality	"How often have you thought about killing yourself in the past year?"	Osman et al. (2001)	4	4.21	4.40	0.87

TABLE 3 (Continued)

Variable	Example questions	Reference	No. items	M	SD	α
Sexual satisfaction	"Over the past 4 weeks, how satisfied have you been with your sexual relationship/s?"	Fisher et al. (2015)	1	2.43	1.16	-
Interpersonal satisfaction	"I get along well with others"	Lambert et al. (2004)	9	3.46	0.73	0.84
Problematic pornography use	"I watch pornographic materials when I am feeling despondent"	Kor et al. (2014)	12	1.60	0.95	0.96

Note: Depression and Anxiety variables are total scores consistent with scoring instructions for the DASS-21, and the Suicidality variable (Osman et al., 2001) and Narcissistic Personality Inventory-13 (Gentile et al., 2013) have been scored as per the scoring instructions.

4.2.1.1 | *Secure profile*

Those within the *secure* profile of singles had the highest mean age and were significantly older than their *anxious* and *fearful* counterparts. They reported a greater number of current close relationships compared to all other subgroups, a similar desire for a relationship relative to anxious individuals, but greater desire than avoidant singles. Secure singles were more likely to report not needing a romantic relationship than were anxious singles, but were more likely to report wanting a relationship in the future compared with the avoidant and fearful singles.

Those in the secure group generally fared better than the other three groups. For instance, secure individuals reported less fear of being single, less emotion dysregulation, and were lower in hurt proneness compared to their fearful and anxious counterparts. They also reported greater empathy and less anxiety about social situations compared to all other groups. Finally, secure individuals reported the greatest satisfaction with their interpersonal relationships, and were lower in depression, anxiety, loneliness, and problematic pornography use compared to their anxious and fearful counterparts.

4.2.1.2 | *Anxious profile*

Those within the anxious profile had significantly fewer close relationships compared to their secure counterparts, but reported the greatest desire for a romantic relationship (significantly higher than avoidant and fearful singles). They were also less likely to report not needing a romantic relationship relative to the secure and avoidant profiles. Anxious singles were highest in emotion dysregulation, hurt proneness, social anxiety, and sexual hyperactivation relative to all other groups. Those in the anxious profile displayed greater hypersensitive narcissism and less empathy compared to the secure profile. The anxious group was significantly higher in loneliness compared to the other three groups and they were the least satisfied with their interpersonal relationships (significantly lower than their secure and avoidant counterparts). The anxious group of singles was also characterized by greater depression, anxiety, suicidality, and problematic pornography use, especially when compared with the secure group. In sum, the anxious profile was characterized by a strong desire for romantic relationships, greater fear of being single, sensitivity to hurt feelings, and difficulties in emotion regulation. They were also higher in loneliness and mental health difficulties, and less satisfied in their non-romantic relationships.

4.2.1.3 | *Avoidant profile*

Participants in the avoidant profile reported fewer current close relationships compared to those in the secure profile. They also reported less current desire for a

TABLE 4 Individual difference factors and psychosocial outcomes split by sub-group (Study 2).

Variable	Secure M (SD)	Anxious M (SD)	Avoidant M (SD)	Fearful M (SD)	ANOVA	η^2
Demographic and relationships						
Age (years)	42.40 (13.41)^{b,d}	37.15 (11.73)^a	41.46 (13.53)	36.13 (10.75)^a	$F_{(3, 396)} = 6.151, p < 0.001$	0.05
Single duration (years)	7.49 (8.00)	9.87 (11.61)	13.37 (15.73)	9.20 (9.61)	$F_{(3, 396)} = 3.024, p = 0.03$	0.02
Dates in past year	2.31 (6.98)	2.13 (4.56)	2.70 (6.88)	2.23 (4.60)	$F_{(3, 393)} = 0.126, p = 0.945$	0.00
N prior relationships	2.37 (1.96)	1.89 (1.82)	1.83 (1.47)	1.55 (1.45)	$F_{(3, 393)} = 3.886, p = 0.009$	0.03
N close relationships	6.38 (3.18)^{b,c,d}	4.42 (2.62)^a	4.48 (2.62)^a	4.02 (2.41)^a	$F_{(3, 396)} = 14.764, p < 0.001$	0.10
Individual differences						
Fear of being single	1.89 (1.00)^{b,d}	3.19 (1.13)^{a,c}	2.01 (1.13)^{b,d}	2.84 (1.08)^{a,c}	$F_{(3, 396)} = 33.36, p < 0.001$	0.20
Emotion dysregulation	2.20 (0.35)^{b,d}	2.86 (0.56)^{a,c,d}	2.29 (0.51)^{b,d}	2.61 (0.57)^{a,b,c}	$F_{(3, 396)} = 35.29, p < 0.001$	0.21
Hurt proneness	2.31 (0.93)^{b,d}	3.51 (0.91)^{a,c,d}	2.44 (0.99)^{b,d}	2.94 (0.85)^{a,b,c}	$F_{(3, 396)} = 38.95, p < 0.001$	0.23
Social anxiety	1.56 (0.63)^{b,c,d}	2.58 (1.00)^{a,c}	2.12 (1.12)^{a,b}	2.37 (0.92)^a	$F_{(3, 396)} = 24.60, p < 0.001$	0.16
Sexual deactivation	2.13 (0.82)^{b,c,d}	3.09 (1.15)^a	2.74 (1.15)^{a,d}	3.41 (0.98)^{a,c}	$F_{(3, 396)} = 27.99, p < 0.001$	0.18
Sexual hyperactivation	2.60 (0.85)^{b,d}	4.19 (1.17)^{a,c,d}	2.68 (1.14)^{b,d}	3.66 (1.03)^{a,b,c}	$F_{(3, 396)} = 52.34, p < 0.001$	0.28
Social approach motivation	5.08 (1.22)^{c,d}	4.86 (1.54)^{c,d}	3.86 (1.94)^{a,b}	4.25 (1.27)^{a,b}	$F_{(3, 396)} = 10.96, p < 0.001$	0.08
Social avoidance motivation	4.81 (1.54)^b	5.36 (1.20)^{a,c,d}	4.21 (1.72)^b	4.76 (1.13)^b	$F_{(3, 396)} = 10.70, p < 0.001$	0.08
Hypersensitive narcissism	2.14 (0.70)^{b,d}	2.99 (0.71)^{a,c}	2.47 (0.88)^b	2.78 (0.71)^a	$F_{(3, 396)} = 27.64, p < 0.001$	0.17
Grandiose narcissism	2.90 (2.82)	2.89 (2.79)	3.33 (3.18)	3.46 (3.22)	$F_{(3, 396)} = 1.04, p = 0.375$	0.01
Empathy	3.28 (0.47)^{b,c,d}	2.95 (0.52)^{a,d}	2.93 (0.78)^a	2.76 (0.56)^{a,b}	$F_{(3, 396)} = 14.86, p < 0.001$	0.10
Desire for relationship	2.96 (1.04)^c	3.19 (0.93)^{c,d}	2.46 (1.09)^{a,b}	2.79 (0.96)^b	$F_{(3, 396)} = 7.923, p < 0.001$	0.06
Future rel. desire	3.46 (0.83)^{c,d}	3.46 (0.83)^{c,d}	2.93 (1.08)^{a,b}	3.10 (0.89)^{a,b}	$F_{(3, 396)} = 7.358, p < 0.001$	0.05
No need for relationship	3.00 (1.05)^b	2.54 (1.02)^{a,c}	3.02 (1.09)^b	2.72 (0.95)	$F_{(3, 396)} = 5.15, p < 0.002$	0.04
Wellbeing indicators						
Depression	2.15 (3.84)^{b,d}	7.38 (5.76)^{a,c}	4.09 (5.56)^b	6.29 (5.49)^a	$F_{(3, 396)} = 20.41, p < 0.001$	0.13
Anxiety	0.90 (1.79)^{b,d}	4.61 (4.21)^{a,c}	1.65 (2.85)^{b,d}	4.04 (4.10)^{a,c}	$F_{(3, 396)} = 24.64, p < 0.001$	0.16
Loneliness	1.55 (0.58)^{b,d}	2.27 (0.62)^{a,c,d}	1.74 (0.70)^b	2.02 (0.67)^{a,b}	$F_{(3, 396)} = 26.65, p < 0.001$	0.17
Meaning in life	4.62 (1.08)^{c,d}	4.40 (0.93)	4.14 (1.24)^a	4.10 (0.87)^a	$F_{(3, 396)} = 5.49, p = 0.001$	0.04
Satisfaction with life	4.72 (1.63)^{b,d}	3.31 (1.68)^{a,c}	4.26 (1.88)^b	3.56 (1.54)^a	$F_{(3, 396)} = 15.65, p < 0.001$	0.11
Suicidality	2.37 (3.15)^{b,d}	5.44 (4.79)^{a,c}	2.98 (3.40)^b	4.55 (4.51)^a	$F_{(3, 396)} = 11.45, p < 0.001$	0.08
Sexual satisfaction	2.57 (1.21)	2.30 (1.13)	2.74 (1.32)	2.36 (1.07)	$F_{(3, 396)} = 2.30, p = 0.077$	0.02
Interpersonal satisfaction	4.03 (0.62)^{b,c,d}	3.17 (0.69)^{a,c}	3.68 (0.73)^{a,b,d}	3.30 (0.58)^{a,c}	$F_{(3, 396)} = 38.07, p < 0.001$	0.22
Problem pornography use	1.28 (0.59)^{b,d}	1.67 (0.98)^a	1.42 (0.87)	1.83 (1.10)^a	$F_{(3, 396)} = 6.91, p < 0.001$	0.05

Note: Bolding indicates significant one-way ANOVA with Bonferroni adjustment ($p < 0.02$). Superscripts indicate statistical significance in post-hoc comparisons with Bonferroni corrections and indicate which groups are significantly different: a—secure; b—anxious; c—avoidant; d—fearful; η^2 —eta squared.

romantic relationship, and less desire for a relationship in future compared to their secure and anxious counterparts. Avoidant singles were lower in social approach motivation compared to their secure and anxious counterparts and reported less fear of being single relative to those in the anxious and fearful profiles. Those in the avoidant profile displayed better mental health and well-being outcomes compared to those in the anxious profile. Avoidant individuals reported less meaning in life compared to secure individuals, but there were otherwise few differences in psychological outcomes between the avoidant and secure profiles. The avoidant profile was less satisfied with the quality of their interpersonal relationships relative to secure individuals, but more satisfied than anxious and fearful singles.

4.2.1.4 | *Fearful profile*

Participants in the fearful profile reported greater emotion dysregulation, hurt proneness, and fear of being single, compared with their secure and avoidant counterparts. They were higher in both sexual hyperactivation and deactivation relative to the secure and avoidant profiles, and higher in social anxiety and lower in empathy relative to the secure profile. The fearful profile was higher in depression, anxiety, loneliness, suicidality, and problematic pornography use relative to those in the secure profile, and less satisfied with their non-romantic relationships compared to their secure and avoidant counterparts.

4.3 | Discussion

The present research applied attachment theory to identify distinct sub-groups of singles. The results across two studies provide clear evidence that single adults are a heterogeneous group that can be clustered into four distinct sub-groups: (1) a *secure* profile, (2) an *anxious* profile, (3) an *avoidant* profile and (4) a *fearful-avoidant* profile. This four-profile solution is consistent with theoretical and empirical conceptualizations of adult attachment (Mikulincer & Shaver, 2016) and with recent theoretical work pertaining to singlehood (Pepping et al., 2018). By focusing on sub-groups of attachment, our work sheds light on the extent to which attachment orientations shape experiences of singlehood, provides meaningful information about the frequency of singles within each sub-group, and highlights that a sizable number of singles are secure and thriving. Indeed, the four sub-groups of singles differed in theoretically meaningful ways in their experiences of singlehood, individual difference factors, and indicators of psychosocial adjustment. We discuss the implications of these results in the sections that follow.

4.3.1 | Some singles are secure and thriving

One of the most important findings from our work is that there is a group of single adults that are secure and thriving. Singlehood of this sort should also be coupled with a pattern of adaptive individual difference characteristics that facilitate the development and maintenance of fulfilling non-romantic relationships (Pepping et al., 2018). Indeed, our results highlight that the secure profile was higher in self-esteem and empathy, and lower in neuroticism compared to the three insecure profiles and was higher in social approach motivation relative to the two avoidant profiles. In Study 2, longer-term singles in the secure profile were less afraid of being single relative to the anxious and fearful profiles, and more strongly endorsed not needing a partner compared to the anxious profile. They did not differ from the anxious profile in desire for a romantic relationship. Of note, they reported more desire for a relationship than the avoidant profile and were more open to having a relationship at some point in the future compared to both avoidant profiles. This is consistent with singlehood being a current preference for those in this profile, rather than a defensive denial of attachment needs. It also converges with evidence that singles who are lower in attachment anxiety and avoidance (i.e., secure) maintain moderate interest in forming a romantic relationship at some point (MacDonald & Park, 2022). The secure profile of singles may therefore not reflect those who DePaulo (2017) describes as being ‘single at heart’ and committed to single living long-term.

Demonstrating that some singles meet their belonging needs from non-romantic relationships, our results also highlight that the secure profile reported a greater number of current non-romantic relationships and greater access to social support compared to the three insecure profiles. Further, they were more satisfied with the quality of these relationships, felt a greater sense of commonality with other singles (relative to the two avoidant profiles), and reported greater psychological need fulfillment (autonomy, competence, and relatedness) compared to those in the three insecure sub-groups. These findings are consistent with evidence that the most frequently cited reason for comfort with singlehood was having meaningful non-romantic relationships (Spielmann, MacDonald, et al., 2013), and evidence suggesting that comfort with singlehood is associated with greater life satisfaction (Kislev, 2021), social satisfaction (Kislev, 2020), and higher quality friendships (Park et al., 2021). Results are also in line with recent evidence that there are sub-groups of singles who experience fulfilling personal relationships (Walsh et al., 2022, 2023). Taken together, these results highlight that secure singles are characterized by more adaptive individual difference characteristics and

relational cognitions, less need for a current relationship, enhanced well-being, and more satisfying non-romantic relationships.

4.3.2 | Distinct patterns of insecurity among singles

4.3.2.1 | *Highly anxious singles*

Consistent with attachment theory, the anxious profile of singles reflected a group of individuals that displayed a strong desire to be in a romantic relationship but intense fears of rejection and abandonment. Specifically, among longer term singles (Study 2) the anxious profile reported the greatest desire for a romantic relationship (significantly greater than the avoidant and fearful profiles). Anxious singles also displayed greater fears of being single and tended to fixate on their single identity more than secure or avoidant singles. Demonstrating their heightened emotional reactions to possible rejection, the anxious profile also reported the greatest emotion dysregulation, sensitivity to hurt feelings, sexual hyperactivation (i.e., heightened sexual desire coupled with anxiety and expectations of rejection; Birnbaum et al., 2014), and motivation to avoid conflict and disagreements (i.e., social avoidance motivation). The anxious profile was also highest in hypersensitive narcissism (significantly higher than the secure and avoidant profiles), characterized by a fragile self-image, hypersensitivity, entitlement, and self-focused attention (Hendin & Cheek, 1997), which has been shown to undermine romantic relationships (Casale et al., 2020). This self-orientated focus is consistent with evidence that anxious individuals tend to be less responsive and empathic to the needs of others (Collins & Feeney, 2004; Feeney & Hohaus, 2001; Mikulincer et al., 2013), and display heightened focus on their own distress (Collins & Read, 1994; Jayamaha et al., 2017).

Given that the anxious profile of singles displayed numerous maladaptive individual difference characteristics, it is not surprising that this group experienced poorer well-being. Our results demonstrated that the anxious profile reported the most loneliness of all the profiles, and they were less satisfied with the quality of their non-romantic relationships compared to those in the secure and avoidant profiles. Although evidence suggests that single people can invest more in their non-romantic relationships relative to their coupled counterparts (Fisher et al., 2021; Sarkisian & Gerstel, 2016), the present results suggest that attachment anxiety is pervasive and may also undermine the quality of non-romantic relationships which, again, highlights the importance of examining sub-groups of singles (Pepping & MacDonald, 2019). Furthermore, anxious singles displayed lower psychological need fulfillment and

life satisfaction relative to secure individuals, and reported greater depression, anxiety, and suicidality compared to the secure and avoidant profiles. Taken together, some single people may remain single due to greater levels of attachment anxiety that are associated with maladaptive cognitive and affective processes that undermine relationship formation and maintenance, despite a strong desire for romantic intimacy and partnership. Those who are single due to processes associated with attachment anxiety also experience poorer well-being, perhaps because their strong needs for love and affection go unmet.

4.3.2.2 | *Highly avoidant singles*

Another theoretically consistent sub-group that emerged was the avoidant profile who, unlike the anxious profile, tended to rebuff emotional intimacy and romantic relationships. For example, the avoidant profile did not differ from the secure profile in their intrinsic and extrinsic motivations for being single (Study 1) suggesting that, like secure singles, the avoidant profile views singlehood as a personal choice. However, avoidant singles reported less desire for a current or future romantic relationship compared to those in the secure and anxious profiles (Study 2). This is consistent with evidence that attachment avoidance is associated with lower relationship desire among singles (MacDonald & Park, 2022). In Study 2, where all participants had been single for at least three years, the avoidant profile reported less fear of being single compared to the other two insecure profiles, but did not differ from the secure profile which, again, suggests that some of their views on singlehood are quite similar to secure individuals.

The avoidant profile differed from secure singles in several important ways. Avoidant singles reported less belonging with other singles, poorer self-esteem and empathy, less social approach motivation, and greater neuroticism, social anxiety, and sexual deactivation compared to secure singles. This combination of low relationship desire, coupled with lower empathy and greater neuroticism and social anxiety, is consistent with conceptualizations of avoidant attachment whereby intimacy needs are defensively inhibited to prevent disappointment and emotional pain (Mikulincer et al., 2004; Mikulincer & Shaver, 2016). These challenges appear to be pervasive. Specifically, although the avoidant profile reported greater satisfaction with their non-romantic relationships compared with the anxious and fearful profiles, they displayed less satisfaction with these relationships compared to secure singles. This is consistent with the notion that attachment avoidance is pervasive and undermines the quality of non-romantic relationships (Pepping & MacDonald, 2019).

We found mixed evidence regarding psychological outcomes for the avoidant profile. In Study 1, avoidant singles

were similar to the anxious profile in relation to psychological need fulfillment and life satisfaction, and fared worse than those in the secure profile. In Study 2, avoidant singles were significantly less distressed relative to the anxious profile and, with a few exceptions, did not differ from secure singles on indicators of well-being. The sample in Study 1 comprised largely young adults ($M=24.55$ years) whereas participants were substantially older in Study 2 ($M=38.55$ years). Perhaps there are life-stage factors that moderate the extent to which avoidant singles experience poorer well-being. For instance, early qualitative work found that some people remain single because they are dedicated to career pursuits (Forsyth & Johnson, 1995), and those high in attachment avoidance can be more satisfied and successful in careers characterized by self-reliance and autonomy compared to those low in avoidance (Eindor et al., 2012). It is plausible that individualistic coping strategies, such as immersion at work, might buffer the effects of social isolation on psychosocial well-being among avoidant singles. Work-related variables were not assessed in the present study, but this possibility should be investigated in future research, along with other factors that promote positive well-being among avoidant singles.

The fact that longer-term avoidant singles generally reported low desire for current and future romantic relationships could suggest that they are most analogous to the ‘single at heart’ group described by DePaulo (2017). According to DePaulo (2017), those who are single at heart prefer to be single, enjoy solitude, and tend to see themselves as being self-sufficient. Yet, those who are ‘single at heart’ are also described as living their “most meaningful and fulfilling lives as single people” (DePaulo, 2017, p. 251) and having a broader, more diverse, network of relationships (i.e., having “the ones” instead of “the one”) which seems more descriptive of the secure group (with their accompanying higher interest in romantic partnership) in the current research. Indeed, avoidant singles reported less meaning in life (Study 2) and were lower in psychological need fulfillment (autonomy, competence, and relatedness; Study 1) compared with secure singles. They also reported fewer close relationships in their lives and less satisfaction with these relationships compared with the secure profile of singles. Thus, it appears more empirical validation of the single at heart construct is needed, as the construct as currently defined (i.e., low desire for a partner plus high social and overall well-being among singles) does not spontaneously emerge from this or previous empirical efforts to categorize singles (Park et al., 2023).

4.3.2.3 | *Fearful-avoidant singles*

Finally, a fourth sub-group of fearful singles emerged, characterized by both relatively strong longing for

relationships but also fears of intimacy. Not only are these results consistent with the four-category model of attachment (Bartholomew & Horowitz, 1991), but both our results and existing work suggest some unique outcomes of fearful-avoidant attachment (Hammonds et al., 2020; Maestre-Lorén et al., 2021; Park et al., 2019). For example, although people in the fearful profile did not differ from those in the anxious profile on measures indicating greater anxieties and fixation on singlehood (e.g., fears of being single, neuroticism, and centrality), they were the most likely to report being unable to find a partner (significantly higher than secure and avoidant counterparts). They also displayed greater emotion dysregulation, hurt proneness, sexual hyperactivation and deactivation, relative to the secure and avoidant profiles, which is consistent with conceptualizations of fearful avoidance that describe incoherent, confused, and chaotic use of both hyperactivating and deactivating attachment strategies (Simpson & Rholes, 2002). In addition, they displayed greater depression and suicidality compared to the secure profile and reported more anxiety and less interpersonal satisfaction compared to the secure and avoidant profiles. The fearful-avoidant profile also displayed the lowest self-esteem and were lower on several well-being indicators, including autonomy, competence, and relatedness.

Notably, the proportion of fearful singles in our studies was much higher than one might anticipate. Specifically, while there was marked similarity between the two studies in the proportion of secure singles (Study 1, 22%; Study 2, 23%) and anxious singles (Study 1, 38%; Study 2, 37%), the proportions for the two avoidant profiles of singles differed somewhat. In Study 1 there were more avoidant (23%) singles than there were fearful-avoidant singles (16%), whereas in Study 2 there were more fearful singles (29%) than avoidant singles (12%). Interestingly, only 22%–23% of singles were classified as secure in the present research which differs markedly from the proportion of secure adults (50%–60%) typically observed in the general population (Mickelson et al., 1997; Mikulincer et al., 1990; Mikulincer & Shaver, 2016; Van IJzendoorn & Bakermans-Kranenburg, 2010).

The lower proportion of secure singles reported here may dovetail with existing research highlighting that singles tend to be, on average, higher in attachment anxiety and avoidance relative to their partnered counterparts (Chopik et al., 2013). Indeed, levels of attachment anxiety ($M=3.70$ – 4.21) and avoidance ($M=3.40$ – 3.56) were higher than those typically found in samples of partnered individuals for attachment anxiety ($M=1.73$ – 2.53) and attachment avoidance ($M=2.60$ – 3.18 ; Fraley et al., 2011). Further, when examined by sub-group (OSM Table S5), the three insecure groups in both studies—representing almost 80% of each sample—were substantially higher

in the relevant insecure subscales. Thus, although not all single individuals are high in attachment insecurity, at least in the present two studies, majority of single individuals displayed insecure tendencies. It is important to consider that the unique concerns during singlehood about meeting belonging needs but fearing rejection may have implications for who might classify as fearfully attached. Future research may benefit from understanding how the changing landscape of singlehood (and dating) might contribute to increasing rates of fearful attachment in singles.

4.4 | Caveats and future directions

Despite the present research having numerous strengths, there are some limitations and caveats to acknowledge. First, while categorical conceptualizations of attachment do have limitations compared to assessing attachment along continuous dimensions, our focus on sub-groups of singles provides meaningful information about the frequencies of different groups of singles, and highlights that a sizable number of singles are secure and thriving.

Second, the cross-sectional nature of the present study means that we cannot establish causation. Although the results were in line with theoretically driven hypotheses and empirical research, we cannot definitively conclude that attachment orientation predicts singlehood or well-being difficulties. For instance, it is possible that being single long-term increases insecurities about intimacy, closeness, and fears of abandonment. However, if this were the case, we would expect to find that insecure singles have been single for longer; there was not consistent evidence of this in the current study. Nonetheless, research does highlight that attachment orientations are open to change based on attachment-relevant events, and can influence relational outcomes (Fraley et al., 2021; Girme et al., 2018). Thus, future research should examine the temporal precedence of attachment insecurities, relationship status and well-being outcomes.

The current samples lived in Western countries, namely Canada and the United States. Although we cannot assume that the results generalize to single people living outside of these countries, similar increases in singlehood have been found in many Western countries (e.g., Australian Institute of Family Studies, 2022). The ethnic composition in Study 1 was fairly diverse, though the sample in Study 2 was predominantly white (80%). Research is needed to examine attachment and singlehood in a range of cultural contexts, including potential cultural influences on the meaning of singlehood or romantic relationships across cultures. In addition, the present samples were predominantly cisgender and

heterosexual people, and we cannot assume that these results generalize to gender and sexual minority adults. For instance, Laming et al. (2023) found that attachment processes were related to singlehood among sexual minority adults, but aspects of social stigma and minority stress predicted singlehood over and above the effects of attachment insecurity. Research is therefore needed to examine heterogeneity among gender and sexual minority single adults.

In addition to identifying the mechanisms by which attachment insecurity predicts singlehood, research is needed to identify risk and protective factors that might moderate the effects of singlehood on psychosocial outcomes among sub-groups of singles (see Pepping & MacDonald, 2019). For instance, perceptions of singlehood (Park et al., 2021), friendship investment (Fisher et al., 2021), and aspects of social support and social discrimination (Girme et al., 2022) have each been shown to predict psychosocial outcomes among single individuals, but it is plausible that these processes might also moderate the effects of singlehood on psychosocial well-being. Indeed, a growing body of research illustrates that romantic partners can buffer the negative effects of attachment insecurity on relationship outcomes (Overall et al., 2022). Expanding on this concept, it may also be that supportive family and friends may similarly help buffer insecurities faced by single people—such as helping anxious singles feel loved and cared for by non-romantic others or fostering greater trust and intimacy among avoidant singles.

Results of the present research clearly indicate that singles are a heterogeneous group of individuals; some are secure and meet their needs for intimacy and closeness in non-romantic relationships, whereas others experience attachment-related insecurities that undermine efforts to form close relationships and predict poorer well-being. There are multiple evidence-based interventions that help couples build stable and satisfying relationships (Halford & Bodenmann, 2013; Halford & Pepping, 2017, 2019). Yet, there is a dearth of research on how we can assist singles to resolve the challenges that prevent them from either living satisfying single lives or forming and maintaining romantic relationships. By identifying sub-groups of singles that differ in meaningful ways, results of the present research may have important implications for the development of interventions designed to help single individuals. Some research suggests that brief ‘practice dating’ (Christensen et al., 1975) and relationship competence (Davila et al., 2021) interventions can be helpful. Interventions that teach skills relevant to each distinct sub-group could help those who want to form relationships but struggle to do so, and/or help insecure singles meet belonging and intimacy needs through non-romantic sources—insights gained by examining secure singles.

4.5 | Conclusions

The present research applied attachment theory to singlehood and illustrated that singles are a heterogeneous group of individuals. We identified four sub-groups of singles that converge with conceptualizations of adult attachment and differ in theoretically meaningful ways in relation to their experiences of singlehood and psychosocial adjustment. Some single people are secure and are able to meet their psychological needs outside of romantic relationships. Other singles have insecurities that keep them from forming and maintaining close and romantic relationships. However, our findings illustrate that not all insecure singles are alike—some crave closeness and intimacy but are driven by fears of rejection, while others fear intimacy and closeness and prioritize their independence. Understanding different attachment concerns among singles provides us with deeper insights about the diverse reasons that people remain single and hold important implications for fostering greater security and satisfaction with singlehood.

AUTHOR CONTRIBUTIONS

C.P. and Y.G. designed the studies; C.P., Y.G., and G.M. developed the conceptual framework and arguments; statistical analysis was primarily completed by T.C. and Y.G.; all authors contributed to the interpretation of results; C.P. primarily wrote the initial draft manuscript, with substantial contribution and significant input from all co-authors.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

Analysis code and unpublished study materials available at: https://osf.io/w5gzt/?view_only=ff9737d6428b46a1b91a1cf8506562bd. Data from the present research can be made

available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The studies reported here received ethics approval from The Simon Fraser University Office of Research Ethics (Study 1) and the La Trobe Human Research Ethics Committee (Study 2).

INFORMED CONSENT

Informed consent was obtained from all participants included within the present manuscript.

PERMISSION TO REPRODUCE MATERIALS

No copyrighted materials were reproduced.

PREREGISTRATION

The present studies were not preregistered.

ENDNOTES

¹ Exploratory analyses highlight that apart from age differences (our samples recruited from undergraduate populations were younger than community samples), that our subsamples were relatively similar in terms of singlehood length as well as attachment avoidance and anxiety (see OSM for more detailed information).

² One participant from subsample IB was removed for failing to complete the attachment insecurity scale.

³ We conducted LPA using the manual BCH method as recommended by Bakk and Kuha (2021) that included the ECR items, in addition to Fear of Being Single and Life Satisfaction as auxiliary variables to validate profile membership and characterization (see OSM). For further characterization of the subgroups, we exported profile membership to SPSS and compared the groups on all variables of interest using a series of ANOVAs. Consistent with prior research (Michielsen et al., 2022), we followed this process as including all variables at once in an LPA would produce a model that is too complex for the BCH approach (Bakk & Kuha, 2021).

⁴ We followed the same procedure described in Study 1 to conduct the LPA using the manual BCH method (Bakk & Kuha, 2021) using Fear of Being Single and Relationship Desire as auxiliary variables (See OSM), and ANOVAs to further characterize the subgroups.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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