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Investigating the role of residential migration history on the relationship between attachment and sense of belonging: A SEM approach

Patric Esters | Brian P. Godor | Ruth Van der Hallen

Department of Psychology, Education & Child Studies, Erasmus University Rotterdam, Rotterdam, The Netherlands

Correspondence

Patric Esters, Department of Psychology, Education & Child Studies, Erasmus University Rotterdam, Rotterdam 3062 PA, The Netherlands.
Email: patric.esters@gmail.com

Abstract

With the rate of both domestic and international migration steadily increasing, the psychological impact of residential migration remains largely unexplored. Attachment, the emotional bond we establish with those close to us, and sense of belonging, the feeling of connectedness to a community, may be vulnerable to frequent migration. This study investigates the association between individuals' early attachment style, sense of belonging, and migration history. A large international sample ($N = 465$) aged between 18 and 50 years old ($M = 21.85$; $SD = 4.48$), completed a survey on early attachment primary attachment style questionnaire (PASQ), sense of belonging (SOBI), and migration. Results comparing non-movers ($n = 240$) to domestic movers ($n = 52$), international movers ($n = 109$), and domestic–international movers ($n = 64$), indicate important group differences related to early attachment and its relationship to one's sense of belonging. Moreover, insecure attachment was associated with increased migration early in life and, more in general, predictive of a negative sense of belonging later in life. Implications for both research and practice are discussed.

KEYWORDS

attachment, belonging, community, expats, international, migration, student, third culture

1 | INTRODUCTION

Since the birth of mankind, travel, and transition has been a part of humanity (Fisher, 2014). Our ethnic diversity is proof that through the millennia our ancestors have been traveling across the globe. Nowadays, in the era of globalization, residential mobility or domestic, and international migration, are more ubiquitous (Chayko, 2002). The impact of migration on the individual, albeit positive or negative, is suggested to be dependent on an individual's circumstances and their interactions with the new community (Bhugra, 2004). Adapting to a foreign culture may require mastering a new dialect or language, understanding local bureaucracy, education, and learning the appropriate cultural frameworks (Dewaele & van Oudenhoven, 2009). Migrating from one's original culture to an unfamiliar culture may result in culture shock (and reverse culture shock upon return) stemming from the cognitive dissonance between the two cultures. Families on the move may face a myriad of emotions such as fear of exclusion, rejection, anxiety over acceptance, anger in the face of discrimination, and relief and comfort when accepted (Hong et al., 2013). Migration within or between countries may temporarily separate children from their primary caregivers (e.g., one parent moving ahead of the rest), friends and family, school, and the larger community, impacting how children later relate to others and form social bonds. Moreover, migrating during one's primary and secondary school years has been suggested to be one of the most detrimental factors on student learning, independent of the number of moves that have taken place (Hattie, 2009). However, migration before adulthood is also associated with higher levels of cross-cultural understanding, multilingualism, and interpersonal sensitivity; as well as a more open worldview (Pollock et al., 2017). Two important factors to understand the impact of domestic or international migration on the individual, are attachment and social belonging.

Attachment is defined as the deep and enduring emotional bond established between an infant and caregiver for reasons of survival (Bowlby, 1969; J. Feeney & Noller, 2012). Since infants are too small to take care of themselves, they will employ gestures such as laughter and crying to awaken the protection of the caregivers. The interaction between child and caregiver, how a caregiver responds, and what expectations the child develops, as a result, are crucial in the formation of one's attachment. Attachment styles develop at an early age and remain rather stable over time (Opie et al., 2020). Ainsworth et al. (1978) (distinguish four attachment styles: one secure and three insecure attachment styles. *Secure* attachment develops when caregivers are emotionally present and respond to the needs of the infants adequately. They tend to feel sufficiently secure to actively explore their surroundings when they are aware of the security of their attachment figure. Conversely, *insecure* attachment develops when a caregivers' emotional availability and the response to the needs of the infant are perceived as inadequate. Insecure attachment styles are subdivided into avoidant, anxious-ambivalent, and disorganized/disoriented. More recently, Salzman et al. (2013) have built upon it by expanding the notion of secure attachment by adding two relatively secure attachment styles: secure/avoidant and secure/ambivalent attachment.

Research suggests one's attachment style serves as an important predictor of a wide range of psychological variables, such as relationship success (J. A. Feeney & Noller, 1990), emotional intelligence (Hamarta et al., 2009), or overall well-being (Karreman & Vingerhoets, 2012). Specifically, secure attachment tends to lead to more prosocial behavior and emotional self-regulation (Keskin & Çam, 2010). As we tend to seek long-term attachment with people we feel comfortable with in times of distress, we tend to spend most of our time surrounded by people with similar interpersonal dynamics or attachment styles (J. Feeney & Noller, 2012). Additionally, secure attachment has been linked to a higher sense of school connectedness (Shochet et al., 2007), fewer dysfunctional assumptions about the self and others (Andersson & Perris, 2000), and higher overall levels of well-being (Moghadam et al., 2016). Conversely, insecure attachment has been deemed a risk factor for depression (Ebrahimi et al., 2017; Zortea et al., 2019). Moreover, factors like loneliness and school belonging in adolescents are predicted by the quality of the relationship with the primary attachment figure and the overall quality of their attachment relationships (Al-Yagon et al., 2016). Hesse and Trask (2014) reported attachment styles to be predictive of the level of affection that is expressed in social contact, with secure individuals showing more affection compared to insecure people, thus affecting the duration and quality of social relationships. Similarly, Frey et al. (2006) revealed a negative relationship

between secure attachment and distress experienced by college students. Specifically for women, the quality of their peer relationships was negatively associated with distress, highlighting the importance of (early) attachment regarding sense of belonging (SOB) later in life.

Research investigating attachment in the context of migration asserts that insecure attachment is an important risk factor regarding one's psychological well-being post-migration. Nadar (2020), when investigating the relationship between migration, attachment, and psychological distress in Arab immigrants, refugees, and asylees, reported insecure attachment being associated with increased psychological distress. Additionally, Nadar reports that attachment mediates the relationship between acculturative stress and psychological distress. Wang and Mallinckrodt (2006) investigated acculturation, attachment styles, and psychosocial adjustment of Chinese/Taiwanese international students residing in the United States. Their results show that attachment anxiety was negatively associated with students' acculturation to US culture and that attachment avoidance, attachment anxiety, and acculturation were significant predictors of students' psychosocial adjustment. Moreover, some studies suggest insecure attachment in itself is more prevalent in individuals with a migration background (van Ecke, 2005). For instance, Little (2015) explored the influence of childhood migration on adult attachment in white missionary kids. In this study, significantly higher levels of insecure attachment (83%) were found in the sample population as opposed to a typically developing sample. However, since little research specifically focuses on this topic, it remains unclear what aspects are important to understand the importance of attachment in light of migration.

SOB is the feeling of connectedness to a social, spatial, cultural, professional, or another type of group or community and is considered inherent to humans (Baumeister & Leary, 1995; Sargent et al., 2002). SOB has two distinct components: the experience of being valued and needed, and the perception that there is a fit between the person's characteristics and their environment (Sargent et al., 2002). The development of one's SOB is dependent upon having a minimum quantity of significant, positive, and lasting interpersonal relationships (Baumeister & Leary, 1995). In other words, our SOB is connected to both the physical and social environment, that is, related to a place (spatial or geographic groups) or social group (non-geographic groups).

Research suggests SOB can have a significant influence on many aspects of an individual's life, such as the formation of social ties, participation of individuals in a community, general well-being, and quality of life (Gattino et al., 2013; Hagerty & Williams, 1999). For instance, a Canadian population survey (N = 703,304) found that people with an increased SOB to their local community report better general health and increased mental health (Michalski et al., 2020). Moreover, research has shown that students with low levels of SOB have lower academic performance (Marksteiner et al., 2019; Noyens et al., 2019), whereas students with high levels of SOB are more motivated and more persistent in their university studies (Marksteiner et al., 2019). Furthermore, Sargent et al. (2002) found that people with lower levels of SOB experienced more feelings of loneliness, a higher degree of emotional distress, and poorer health.

Research investigating SOB in the context of migration suggests both domestic and international migration are risk factors for one's SOB, especially when your SOB is defined by a geographical area (e.g., local community, neighborhood social network) rather than a group not limited by a spatial boundary (e.g., a football team, cultural group, social networking site). Feeling a SOB to a community predicts better quality of life, whereas feeling connected to a place does not (Gattino et al., 2013). That is, the interpersonal connection to individuals and one's community, appear to matter more than one's attachment to their place of residence. Moreover, a sense of community (SoC) has been found to have a buffering effect on life satisfaction of migrants in Spain when compared to locals (Hombrados-Mendieta et al., 2013), indicative that higher SoC leads to higher well-being among both migrants and locals. Counted et al. (2018) investigated migration and demographic variables of African migrants in the Netherlands, and their sense of place (feeling of belonging to a place). Depending on their engagement with their new community, level of education, and knowledge of the local language, they felt more or less connected. However, the region where they were living also affected their sense of place. That is, one can also identify with a community independent of one's geography, by having a shared interest (e.g., international science fiction fans connecting online) (Obst et al., 2001). Communities with a shared interest can feel even closer to that community than their local geographical community (Obst et al., 2001). Cicognani et al. (2011) investigated how relocation impacts SOB in university students. Their results suggest an important relationship between SOB and one's willingness to

move. Moreover, students that indicated they had felt "forced to move" due to academic reasons reported higher levels of SOB to their hometown, while students that indicated they moved "voluntarily" reported lower levels of SOB to their hometown. Moreover, research looking at children that have moved between countries at a young age or that are born into families of which both parents have different nationalities, suggests these children may experience "cultural homelessness" (CH; Vivero & Jenkins, 1999). CH can be defined as "feeling a lack of cultural or ethnic group membership, emotional detachment from any cultural group, and a need for a cultural home" (Hoersting & Jenkins, 2011; p. 19). Accordingly, Hoersting and Jenkins (2011) found that people who experience CH report lower levels of SOB. For some, CH seems to be a strength as they are more open to diversity, proficient in several languages, and more competent in communicating across different cultures (Dewaele & Van Oudenhoven, 2009; Hoersting & Jenkins, 2011). For others, CH can prove to be a hindrance, linked to low levels of emotional stability (Dewaele & Van Oudenhoven, 2009) and low self-esteem (Hoersting & Jenkins, 2011). These contradictory aspects demonstrate the complex relationship between SOB and (inter)national migration; Though not all who wander are lost, to date, it remains unclear what aspects are important to better understand the impact of migration on SOB.

This study aims to investigate the association between an individual's early attachment style, their SOB, and their domestic and/or international migration history. To this date, little or no research has focused on the direct link between early attachment and SOB whilst taking into account the extent to which individuals have migrated, either on a domestic or international level. Based on previous literature, it is expected that:

(1) Domestic and international migration are associated with insecure attachment styles;
(2) Domestic and international migration are associated with lower SOB;
(3) Insecure attachment is associated with lower SOB;
(4) The relationship between attachment and SOB is influenced by the extent to which one has moved on a domestic or international level.

2 | METHODS

2.1 | Participants

The study included 465 English or Dutch-speaking participants ($N_{♂}$ = 93, $N_{♀}$ = 366, N_{o} = 6), aged 18–50 years old (M = 21.85; SD = 4.48) mostly enrolled within the Erasmus University Rotterdam, the Netherlands. 53% of the sample identified as Dutch, whereas 47% identified as non-Dutch. The majority of non-Dutch participants identified themselves as having a double nationality (31%) or as German (12%), Turkish (5%), American (5%), or Vietnamese (3%). Participants also reported how often they had moved domestically (M = 1.72, SD = 3.28, range = 0–60) and/or internationally (M = 0.89, SD = 1.65, range = 0–11) before the age of 18.

2.2 | Procedure

All study protocols were in accordance with the ethical standards of the ethical committee, EC-DPECS, Erasmus University Rotterdam. Informed consent was obtained before participation. Data was collected using a self-administered, online survey available in both English and Dutch. Participant recruitment was set up through the university's recruitment facility and distribution of the survey via social media channels. When applicable, participants received course credit for their participation.

All participants completed the primary attachment style questionnaire before 12 (PASQ before 12; Salzman et al., 2013) and the Sense of Belonging Instrument (SOBI; Hagerty & Patusky, 1995) in addition to completing a series of sociodemographic questions. The original versions of the PASQ and SOBI were translated from English to

Dutch to accommodate Dutch-speaking participants using an adapted version of the 10 steps back-translation method as described by Tyupa (2011).

2.3 | Materials

2.3.1 | Demographics

Participants were asked to specify their age, gender, and nationality, in addition to indicating how many times they had moved either within or between countries before the age of 18.

2.3.2 | PASQ before 12

The PASQ before 12 (Salzman et al., 2013) is a 42-item brief self-report questionnaire that measures attachment styles to one's primary caregiver before age 12. Each item of the PASQ before 12 is rated on a 7-point Likert scale, ranging from 1 "never true" to 7 "always true." Raw scores can be converted into scaled scores using two distinct methods. A first method translates a participant's raw scores into a *Z* score per attachment style. Salzman et al. (2013) worked with six different styles, which contain the previously mentioned four attachment styles by Bowlby and two additional secure styles. Their pilot studies showed that it was more precise to separate secure attachment into secure, secure-ambivalent, and secure-avoidant. A second method translates a participant's raw scores to mean ratings per attachment style. This score is obtained by adding up the raw scores for the corresponding items per attachment style. Within the current study, we employed the method developed by Salzman et al. (2013). The PASQ is originally characterized by good internal validity (Salzman et al., 2013). For convenience, the PASQ before 12 will be referred to as "PASQ" throughout the Results section.

2.3.3 | SOBI

The SOBI (Hagerty & Patusky, 1995) is a 27-item, self-report questionnaire designed to measure SOB in adults. The SOBI consists of two separately scored scales, the 18-item SOBI-P (psychological state), and 9-item SOBI-A (antecedents). Each item of the SOBI is rated on a 4-point Likert scale, ranging from 1 "not relevant" to 4 "very relevant." High scores correspond to a high SOB, with total scores ranging from 27 to 108. The SOBI is originally characterized by good internal validity and test-retest reliability (Hagerty & Patusky, 1995). For the current study, only the SOBI-P was included as it relates to the main variables of interest and has higher validity than the SOBI-A.

2.4 | Data analysis

To investigate the association between an individual's early attachment style and their SOB later in life in light of their migration history, subgroups were created based on participants' migration history in line with previous research (Susukida et al., 2016; Tseliou et al., 2016), see Table 1. Statistical analyses were conducted using AMOS 24.0 for Windows. Confirmatory analysis and structural equation modeling (SEM) analyses were estimated using the maximum likelihood estimation method. Secure and insecure subscales of the PASQ were evaluated in separate SEM models throughout the analyses to allow for proper evaluation of both subscales. Data collection was fully online and strict validation was used for participants' answers, meaning the data set contained no missing data. The comparative fit index (CFI), CMIN/DF, and root mean square error of approximation (RMSEA) were used as

TABLE 1 Subgroups based on participants' migration history

		Domestic	
		<3 moves	≥3 moves
International	0 moves	"Non-movers"	"Domestic movers"
		n = 240	*n* = 52
	≥1 moves	"International movers"	"Domestic–international movers"
		n = 109	*n* = 64

indicators of model fit. For the CFI model fit is deemed acceptable if CFI values are greater than 0.90. For the minimum discrepancy index CMIN/DF a ratio of <2.0 represents adequate fit (Byrne, 2016). For the RMSEA values below 0.05 indicate close approximate fit, while values between 0.05 and 0.08 suggest reasonable error of approximation. The participants-to-parameters ratio was 11:1 or 10:1 depending on the proposed model and met the generally acceptable range (Gorsuch, 1983; Worthington & Whittaker, 2006). Additionally, the data set met minimum sample size guidelines ($N > 300$) as asserted by Comrey (1973). As for multivariate normality, all indicators revealed levels (<3, Kline, 2011) indicate extreme values in terms of kurtosis or skewness were of no concern.

3 | RESULTS

3.1 | PASQ

3.1.1 | Confirmatory factor analysis and measurement invariance

To ascertain that the original PASQ factor structure was present within our population, a confirmatory factor analysis of the PASQ was performed for both the secure and insecure subscale using SEM (see Figure 1). Adequate model fit was achieved for both the secure (CFI = 0.90; CMIN/DF = 3.08, RMSEA = 0.053) and insecure (CFI = 0.90; CMIN/DF = 2.59, RMSEA = 0.065) subscale. For the secure subscales, no error correlations were utilized to achieve this fit. For the insecure subscale, four error residuals were correlated in the model; however, these error residuals were correlations within factors. Such covariation is generally due to a common shared data collection method and a potential overlap in the theoretical foundation of the factor variable's operationalization. As such, these error terms most likely reflected common variance between the components, which has been found to be acceptable in general practice (Cole et al., 2007).

Next, measurement invariance of the secure and insecure subscales of the PASQ was evaluated for all group comparisons. Full measurement invariance was achieved (CFI change < 0.01, Cheung & Rensvold, 2002) for all group comparisons with minimal adjustment, for more detail, see Appendix A.

3.1.2 | Mean differences

To investigate mean differences for the PASQ between non-movers ($n = 240$) and domestic movers ($n = 52$) subsequent statistical tests were performed for both secure and insecure subscales of the PASQ. In SEM, all three latent constructs were constrained to zero for non-movers and allowed to freely estimate for domestic movers. Any freely estimated critical ratios that are significantly different from zero indicates significant differences between the two groups. For the secure subscales, the analysis revealed significantly lower mean levels for domestic movers compared non-movers for the *Secure* (CR = −0.68, $p = 0.02$) and *Secure-Ambivalent* (CR = −0.40, $p < 0.004$), but not

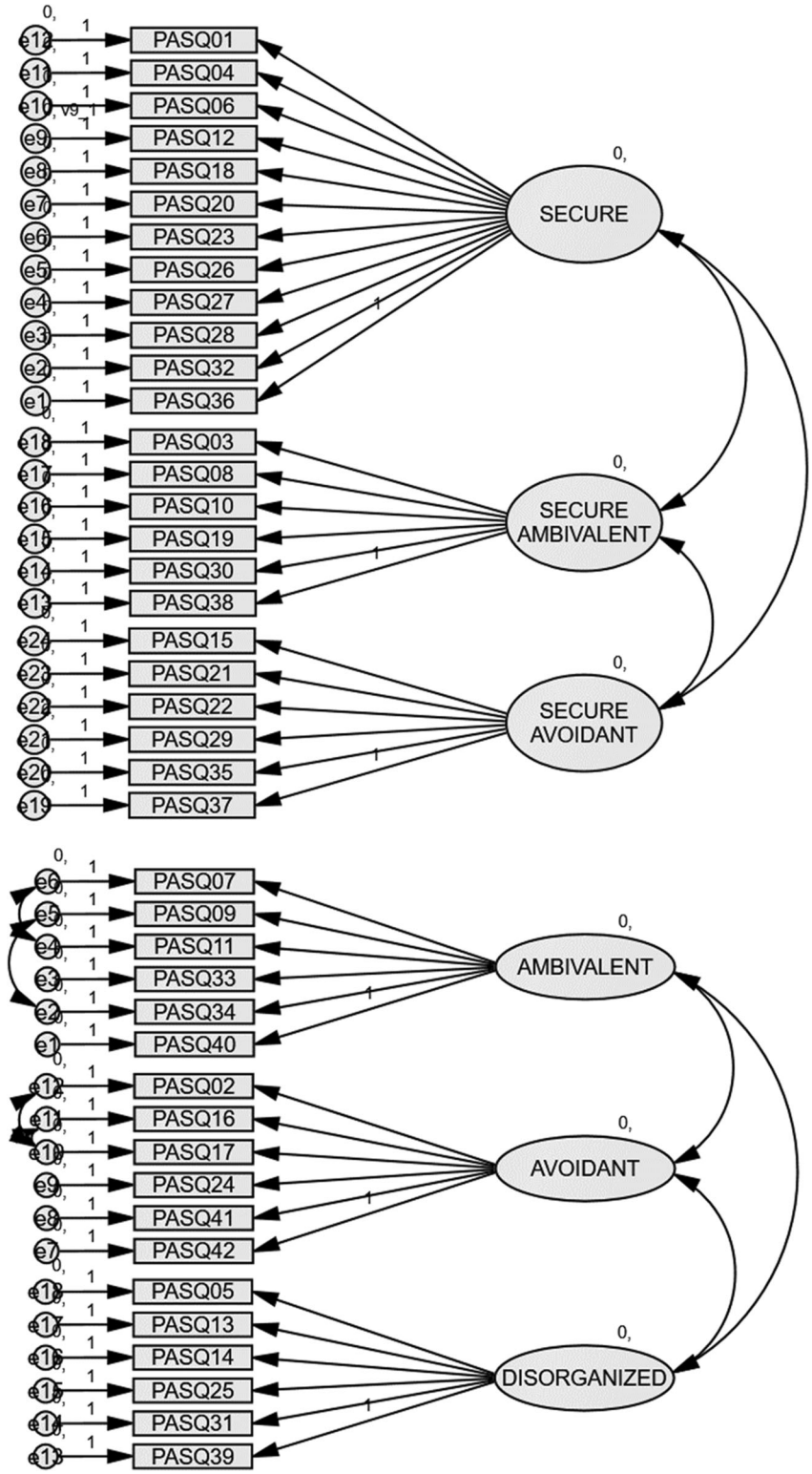

FIGURE 1 Factor structure of the secure and insecure subscales of the PASQ. PASQ, primary attachment style questionnaire.

the *Secure-Avoidant* ($p > 0.05$) subscale. For the insecure subscales, the analysis revealed significantly higher mean levels for domestic movers compared to non-movers for *Disorganized* (CR = 0.54, $p = 0.02$) and *Avoidant* (CR = 0.54, $p = 0.04$), but not *Ambivalent* ($p > 0.05$) subscale.

To investigate mean differences for the PASQ between non-movers ($n = 240$) and international movers ($n = 109$), subsequent statistical tests were performed for both secure and insecure subscales of the PASQ, using a similar method as hereinabove. For the secure subscales, the analysis revealed no significant mean differences between non-movers and international movers for any of the three subscales ($ps > 0.05$). For the insecure subscales, the analysis revealed significantly higher mean levels for international movers compared to non-movers for the *Ambivalent* (CR = 0.33, $p = 0.03$), but not *Avoidant* or *Disorganized* ($ps > 0.05$) subscales.

To investigate mean differences for the PASQ between non-movers ($n = 240$) and domestic−international movers ($n = 64$), subsequent statistical tests were performed for both secure and insecure subscales of the PASQ, using a similar method as hereinabove. For the secure subscales, the analysis revealed significantly lower mean levels for domestic−international movers compared to non-movers for the *Secure* (CR = −0.519, $p = 0.03$) subscale and higher mean levels for domestic−international movers compared to non-movers for the *Secure-Avoidant* (CR = 0.509, $p = 0.001$) subscale. For the *Secure-Ambivalent* ($p > 0.05$) subscale, no significant differences were revealed. For the insecure subscales, the analysis revealed significantly higher mean levels for domestic −international movers compared to non-movers for *Ambivalent* (CR = 0.940, $p = 0.001$) and *Avoidant* (CR = 0.577, $p = 0.02$), but not *Disorganized* ($p > 0.05$) subscale.

3.2 | SOBI-P

3.2.1 | Confirmatory factor analysis and measurement invariance

To ascertain the original SOBI-P factor structure within our population, a confirmatory factor analysis of the SOBI-P was performed (see Figure 2). Inadequate model fit was revealed (CFI < 0.90). Subsequent exploratory factor analysis revealed three items with insufficient factor loadings (<0.40). These three items, items 16, 17, and 18, were removed, and a second confirmatory analysis was performed in SEM. For the SOBI-P, adequate model fit was achieved (CFI = 0.96; RMSEA = 0.062).

Next, measurement invariance of the SOBI-P was evaluated for all group comparisons. Full measurement invariance was achieved (CFI change < 0.01, Cheung & Rensvold, 2002) for all group comparisons with minimal adjustment, for more detail, see Appendix A.

3.2.2 | Mean differences

To investigate mean differences for the SOBI-P among the three comparison groups, non-movers ($n = 240$) compared to domestic movers ($n = 52$), international movers ($n = 109$), and domestic−international movers ($n = 64$), subsequent statistical tests were performed using a similar method as hereinabove. Interestingly, no significant differences between any of the three comparison groups were revealed ($ps > 0.05$).

3.3 | Relationship between PASQ and SOBI-P

To evaluate whether the relationship between the subscales of the PASQ and the SOBI-P differs depending on the subgroup, potential differences in predictive value of the PASQ for the SOBI-P were evaluated in SEM (see Figure 3). Differential relationship tests revealed no significant differences for any of the comparisons ($ps > 0.05$) between the secure

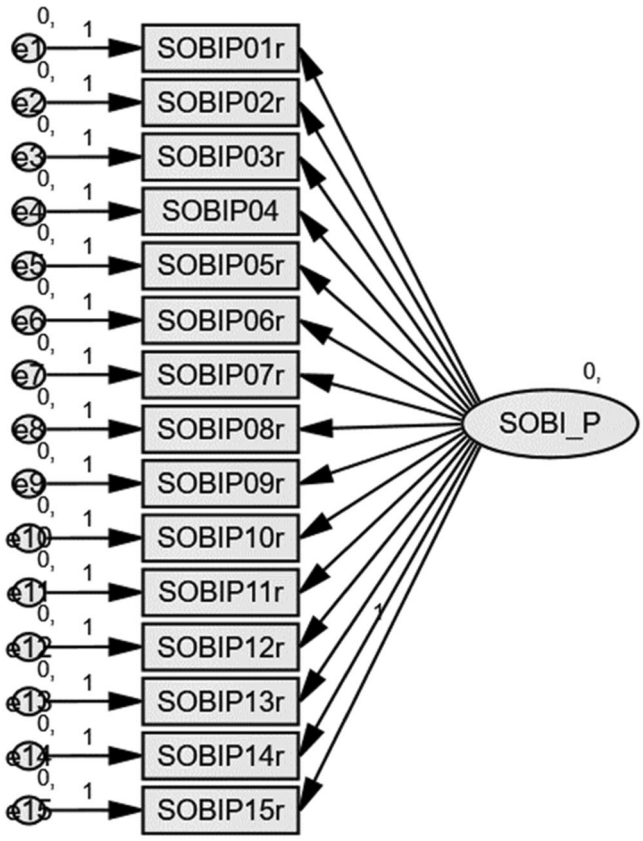

FIGURE 2 Factor structure of the SOBI-P. SOBI, sense of belonging instrument.

and insecure PASQ subscales and the SOBI-P for all three comparisons, that is, non-movers ($n = 240$) compared to domestic movers ($n = 52$), international movers ($n = 109$), and domestic–international movers ($n = 64$).

To investigate the extent to which the secure and insecure subscales of the PASQ predict the SOBI-P, the respective relationships were evaluated with regard to significance in SEM for each of the four groups. For the non-movers, a significant relationship was revealed for secure subscales *Secure* ($\beta = 0.184$, $p = 0.001$) and *Secure-Ambivalent* ($\beta = -0.203$, $p = 0.006$) and for the insecure subscale *Avoidant* ($\beta = -0.287$, $p = 0.021$), while all other relationships were not significant ($ps > 0.05$). For the domestic movers, no significant relationships were revealed, not between the secure subscales of the PASQ and the SOBI-P nor the insecure subscales of the PASQ and the SOBI-P ($ps > 0.05$). For the international movers, a significant relationship was revealed for *Secure* ($\beta = 0.185$, $p = 0.001$) and *Secure-Avoidant* ($\beta = -0.127$, $p = 0.047$) subscales predicting the SOBI-P, while all other relationships were not significant ($ps > 0.05$). For the domestic–international movers, a significant relationship was revealed for the *Secure* ($\beta = 0.124$, $p = 0.021$) subscale predicting the SOBI-P, while all other relationships again were not significant ($ps > 0.05$).

4 | DISCUSSION

Moving within or between countries has become increasingly common all around. Whereas some move as a result of negative circumstances like poverty, repression, human rights abuses, or safety, others pack up and leave out of their own desire. Previous research suggests the impact of both domestic and international migration on the

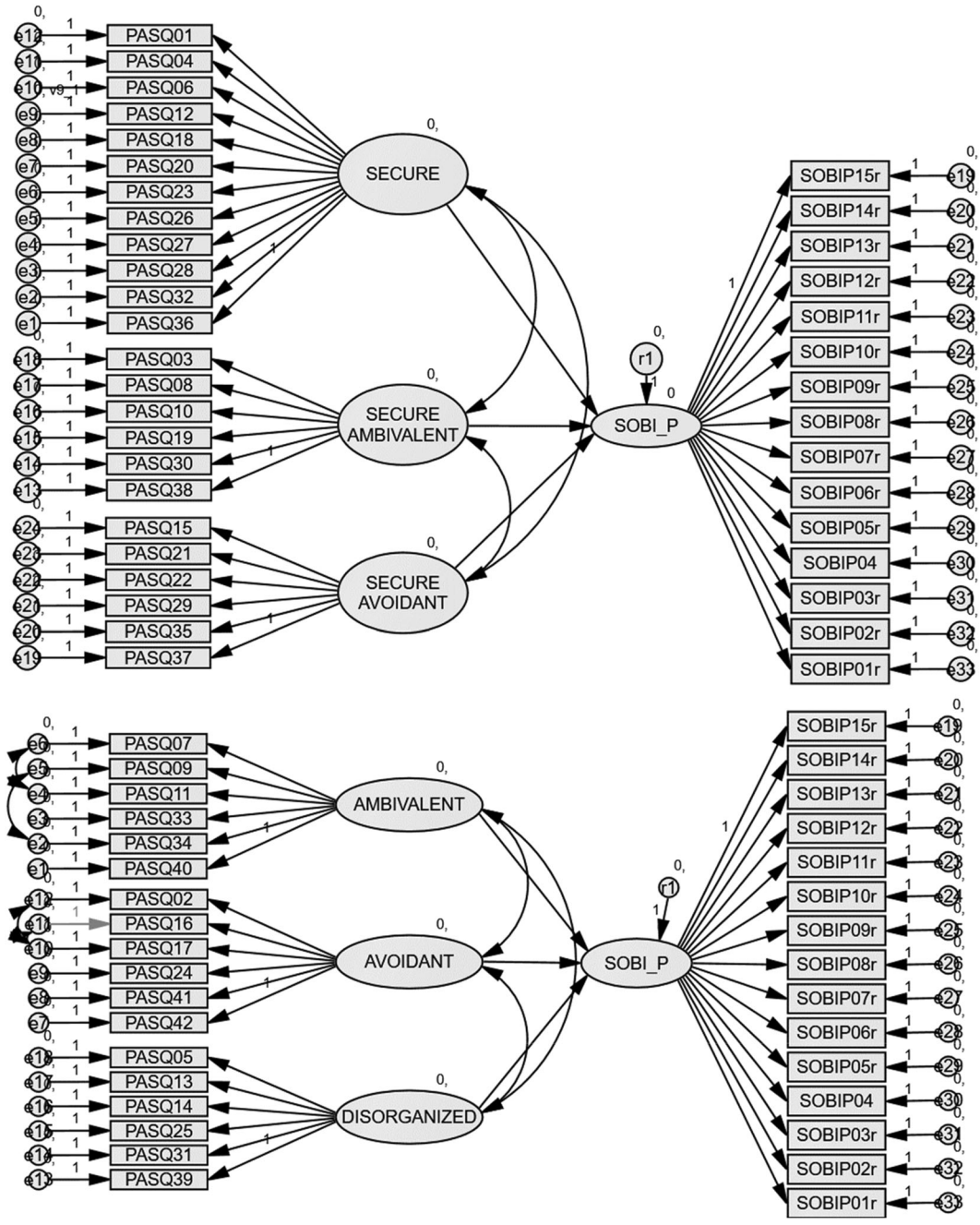

FIGURE 3 SEM model of the secure and insecure subscales of the PASQ and SOBI-P. PASQ, primary attachment style questionnaire; SEM, structural equation modeling; SOBI, sense of belonging instrument.

individual, albeit positive or negative, cannot be underestimated, yet, is dependent on individual circumstances (Bhugra, 2004). The current study investigated early attachment, SOB, and the relationship between both in light of an individual's migration history in an international sample, including non-movers ($n = 240$), domestic movers ($n = 52$), international movers ($n = 109$), and domestic–international movers ($n = 64$). Results indicate interesting

group differences related to early attachment and the relationship between early attachment and SOB, yet no group differences related to SOB due to migration history. Regarding early attachment, results indicate lower levels of secure attachment for domestic and domestic–international movers compared to non-movers and higher levels of insecure attachment for domestic, international, and domestic–international movers compared to non-movers. This means that increased migration in one's developing years is related to a less secure attachment. Regarding the relationship between early attachment and SOB, results indicate that while the nature of the relationship is similar across all groups, attachment is particularly predictive of SOB for non-movers compared to movers and secure attachment rather than any other attachment substyles is the best predictor of SOB. Implications for both research and practice are discussed.

4.1 | Not lost but wandering

Attachment, defined as the deep and enduring emotional bond established between an infant and their caregiver for reasons of survival, has been considered an important risk factor with regard to psychological well-being post-migration (Bhugra, 2004). Our results, comparing early attachment among non-movers, domestic, international, and domestic–international movers, indicate lower levels of secure attachment for domestic and domestic–international movers and higher levels of insecure attachment for domestic, international, and domestic–international movers, compared to non-movers. In other words, movers reported lower levels of secure and/or higher levels of insecure attachment compared to the non-movers. Interestingly, differences were more pronounced for insecure compared to secure aspects of attachment, and for domestic and domestic–international movers compared to non-movers than for international movers compared to non-movers. Overall, this suggests that migration at a young age, whether domestically, internationally, or both, is associated with an insecure attachment style. Previous research investigating attachment in the context of migration seems to be in line with the current findings. For instance, both Nadar (2020) and Wang and Mallinckrodt (2006) found insecure attachment or attachment anxiety, rather than secure attachment, to be linked to psychological distress or psychosocial adjustment in migrants. Moreover, Little (2015) found a clear association between childhood migration and the prevalence of insecure attachment in missionary kids. That said, previous research investigating the importance of early attachment for different migration groups, for instance comparing domestic vs international movers, is limited as most research tends to compare one group of "movers" to a group of "non-movers," failing to include domestic movers as a comparison group, putting the research at the risk of revealing effects that are due to relocation irrespective of its domestic or international character. As such, the current research offers new insights into the effect of moving among these four distinct groups.

SOB, the feeling of belonging or connectedness to a social, spatial, cultural, professional, or another type of group or community, is inherent to humankind (Baumeister & Leary, 1995; Sargent et al., 2002). Contrary to what was originally hypothesized, the current findings revealed levels of SOB not to differ among the four subgroups. In other words, one's residential migration status was not associated with one's level of SOB. These results stand in contrast to previous studies that have suggested that residential migration is a risk factor for SOB (Hoersting & Jenkins, 2011; Vivero & Jenkins, 1999). However, there are several noteworthy protective factors to this relationship. For example, previous research has indicated that a good social support network (Fontaine, 1986) and some type of employment (or day-time activity) (Marshall & Foster, 2002) after a domestic or international migration can be beneficial in one's development of SOB. Since the current sample largely consists of university students, it could be hypothesized that a university environment inherently provides enough opportunity for students to build SOB in terms of providing newcomers (albeit domestic or international) with a support network and, much like employment would do, with a full-time educational agenda that allows them to bond and connect to others. In other words, domestic- and/or international migration in a student population might be less of a risk factor for SOB given the setup and SoC universities tend to provide. Campus engagement and feeling included

appear to also increase a SOB on campus for students with psychiatric disorders and have a stronger effect on SOB than their psychiatric symptomatology (Jones et al., 2015). Moreover, how we maintain social bonds, connect to others, or feel part of a community, is changing in the Internet Age (Chayko, 2002). The more we use the internet to keep in contact, regardless of time and place, the less we need a shared geographical location to do so, adding a new dimension to the notion of SOB.

Additionally, the relationship between attachment and SOB has been explored in previous research (Çikrikçi & Gençdoğan, 2017), however, previous research has not taken into account to what extent individuals have migrated, either on a domestic or international level. By incorporating this, the current study's results reveal two important findings between attachment and SOB among our four subgroups of movers and non-movers. First, using differential relationship tests, our results indicate that the predictive value of early attachment for SOB later in life does not differ among the four groups. While theoretically plausible, the manner in which early attachment predicted later SOB did not differ between these groups. Second, the current study's results indicate that both secure and insecure attachment, though secure attachment, in particular, have a predictive value of SOB. Moreover, between Secure attachment and SOB, a significant positive relationship was revealed (for non-movers, international, and domestic–international movers). Conversely, a significant negative relationship was revealed for Secure-Ambivalent (non-movers), Secure-Avoidant (international movers), and Insecure-Avoidant attachment (non-movers) and SOB. In other words, early attachment does play a role in SOB, however, differences do not depend on one's migration history. Interestingly, insecure attachment did not have a significant relationship to SOB for domestic movers. While difficult to explain why domestic movers present as a distinct group, it may be in part because what is involved in a "domestic" move can differ greatly, that is moving within cities, between cities, between states, and depending on the country of origin, flying halfway around the globe. While a domestic move is distinct from moving internationally, especially considering international moves that entail a change in language and cultural beliefs, domestic moves as just described may contain a plethora and range of variables that may make interpretation of this category difficult.

4.2 | Limitations and suggestions for future research

While the current study presents novel and important findings, two limitations need to be considered. First, one cannot draw formal causal conclusions based on the current findings, as without longitudinal data one cannot conclude whether it is frequent moving that leads one to develop a more insecure attachment style or whether an insecure attachment style (of the respondents and/or their parents) sets the stage for frequent moving or both. Second, some limitations regarding the measures and time frame of the study are important to highlight. SOBI items are generally phrased negatively (e.g., "I feel left out of things," "If I died tomorrow, very few people would come to my funeral"). While this is inherent to this particular questionnaire, that phrasing might present as more sensitive to the conditions of the global COVID-19 pandemic (Gomes et al., 2021) that was just ongoing when participants were invited to take part in this study study. The COVID-19 lockdown measures increased loneliness in young adults aged 18–25 (Marchini et al., 2020). Thus, the university students partaking in our study may have also been affected in their SOB.

Future research is needed to further explore the relationship between early attachment, SOB, and migration. Though clinical accounts mention a clear link between identity formation, SOB, and migration, this association is not yet well understood (Bhugra & Becker, 2005). Whereas our results show mixed results regarding attachment, SOB and the relationship between the two, previous research highlights the importance of one's SOB (Baumeister & Leary, 1995) to attachment research (Çikrikçi & Gençdoğan, 2022; Venta et al., 2014), and higher education (Meeuwisse et al., 2010; O'Keeffe, 2013). Firstly, future research should take a broader approach when considering migration and include aspects like age of moving, socioeconomic status, whether certain moves were perceived as significant and in which way (e.g., positive or negative), one's reason for moving (e.g., forced vs. voluntary) and to

what extent one was able to stay connected to their community. Additionally, the relationship between student migration and mental health deserves further investigation. Moving tends to be experienced as a stressful event even when it has a positive outcome (Bhugra, 2004). People that move a lot at an early age (e.g., third culture kids) are understudied and interventions tailored to this group are largely lacking (Bushong, 2013; Fail et al. 2004; Pollock et al., 2017; Wiese, 2010). Moreover, the relationship between migration and resilience versus vulnerability could have important clinical and educational policy implications (Bhugra, 2004). For instance, increasing SOB can function as an antidote to loneliness (Asher & Weeks, 2013; Hagerty & Patusky, 1995) and secure attachment is a protective factor but might be influenced by migration. The impact of frequent migration during one's developing years is underestimated in educational and clinical settings, also for domestic movers (Dong et al., 2005). Moreover, SOB has been shown to foster resilience in the aftermath of a traumatic event (Li et al., 2011). Educators and clinicians can take this into account when fostering resilience in individual and community-based approaches.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Patric Esters https://orcid.org/0000-0001-6394-8964
Brian P. Godor https://orcid.org/0000-0003-3070-3404
Ruth Van der Hallen http://orcid.org/0000-0001-6899-4898

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APPENDIX A

To test measurement invariance of the PASQ between non-movers ($n = 240$) and domestic movers ($n = 52$) measure invariance analyses were conducted for both secure and insecure subscales of the PASQ (see Appendix, Table A1). For the secure subscale, full measurement invariance was achieved, through the elimination of two items (Q19 and Q8) for the *Secure-Ambivalent* subscale. For the insecure subscales, full measurement invariance was achieved without any item deletion.

To test measurement invariance of the PASQ between non-movers ($n = 240$) and international movers ($n = 109$) measure invariance analyses were conducted for both secure and insecure subscales of the PASQ (see Appendix, Table A2). For the secure subscale, full measurement invariance was achieved due to the elimination of two items for the *Secure-Ambivalent* subscale. For the insecure subscales, full measurement invariance was achieved without any item deletion.

To test measurement invariance of the PASQ between non-movers ($n = 240$) and domestic–international movers ($n = 64$) measurement invariance analyses were conducted for both secure and insecure subscales of the PASQ (see Appendix A, Table A3). For the secure subscales, full measurement invariance was achieved due to the elimination of two items for the *Secure-Ambivalent* subscale. For the insecure subscales, full measurement invariance was achieved without any item deletion.

TABLE A1 Measurement invariance of the PASQ for non-movers and domestic movers

	CFI	ΔCFI	CMIN/DF	RMSEA
Secure subscales				
Configural invariance	0.915		1.88	0.055
Metric invariance	0.913	<0.01	1.86	0.055
Scalar invariance	0.910	<0.01	1.85	0.054
Insecure subscales				
Configural invariance	0.910		2.23	0.065
Metric invariance	0.905	<0.01	2.20	0.065
Scalar invariance	0.901	<0.01	2.20	0.064

Abbreviations: CFI, comparative fit index; PASQ, primary attachment style questionnaire; CMIN/DF, minimum discrepancy function by degrees of freedom divided; RMSEA, root mean square error of approximation.

TABLE A2 Measurement invariance of the PASQ for non-movers and international movers

	CFI	ΔCFI	CMIN/DF	RMSEA
Secure subscales				
Configural invariance	0.907		2.03	0.055
Metric invariance	0.906	<0.01	1.99	0.054
Scalar invariance	0.902	<0.01	1.99	0.054
Insecure subscales				
Configural invariance	0.908		2.40	0.064
Metric invariance	0.905	<0.01	2.36	0.063
Scalar invariance	0.899	<0.01	2.36	0.063

Abbreviations: CFI, comparative fit index; PASQ, primary attachment style questionnaire; CMIN/DF, minimum discrepancy function by degrees of freedom divided; RMSEA, root mean square error of approximation.

To test measurement invariance of the SOBI-P measurement invariance tests were performed for all three comparison groups: that is, non-movers ($n = 240$) compared to domestic movers ($n = 52$), international movers ($n = 109$), and domestic–international movers ($n = 64$). Full measurement invariance was achieved for all three comparisons for the SOBI-P (see Appendix A, Table A4).

TABLE A3 Measurement invariance of the PASQ for non-movers and domestic–international movers

	CFI	ΔCFI	CMIN/DF	RMSEA
Secure subscales				
Configural invariance	0.904		1.96	0.056
Metric invariance	0.902	<0.01	1.93	0.056
Scalar invariance	0.894	<0.01	1.98	0.057
Insecure subscales				
Configural invariance	0.910		2.22	0.064
Metric invariance	0.909	<0.01	2.16	0.062
Scalar invariance	0.899	<0.01	2.21	0.063

Abbreviations: CFI, comparative fit index; PASQ, primary attachment style questionnaire; CMIN/DF, minimum discrepancy function by degrees of freedom divided; RMSEA, root mean square error of approximation.

TABLE A4 Measurement invariance of the SOBI-P for all comparison groups

	CFI	ΔCFI	CMIN/DF	RMSEA
Non-movers versus domestic movers				
Configural invariance	0.928		2.03	0.060
Metric invariance	0.928	<0.01	1.96	0.058
Scalar invariance	0.924	<0.01	1.93	0.057
Non-movers versus international movers				
Configural invariance	0.944		1.98	0.053
Metric invariance	0.944	<0.01	1.90	0.051
Scalar invariance	0.942	<0.01	1.87	0.050
Non-movers versus domestic–international movers				
Configural invariance	0.938		1.89	0.065
Metric invariance	0.941	<0.01	1.78	0.065
Scalar invariance	0.932	< 0.01	1.84	0.064

Abbreviations: CFI, comparative fit index; SOBI-P, sense of belonging inventory - psychological state; CMIN/DF, minimum discrepancy function by degrees of freedom divided; RMSEA, root mean square error of approximation.