



**PLANNING MALAYSIA:**  
*Journal of the Malaysian Institute of Planners*  
**VOLUME 21 ISSUE 4 (2023), Page 390 – 401**

## **MEDIATING ROLE OF SENSE OF BELONGING IN THE RELATIONSHIP BETWEEN SOCIAL FACTORS AND NEIGHBOURHOOD ATTACHMENT: A CASE STUDY OF PENANG, MALAYSIA**

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### **Abstract**

Many studies have examined the impact of social factors on neighbourhood attachment. However, more studies need to be on the mediating effect of the sense of belonging in a built environment. This study aims to investigate its mediating role in the relationship between social factors and neighbourhood attachment in two neighbourhoods in Penang Island, Malaysia. A sample of 362 residents was requested to answer a questionnaire survey with a Likert scale to measure the residents' assessment of social factors, neighbourhood attachment level and sense of belonging. Neighbourhood attachment is a second-order factor structure assessed by a first-order factor structure that includes place dependence and social bonding. The social factor is also a second-order construct with two dimensions: social trust and social support. The findings were then analysed by structural equation modelling. These results support the theoretical findings in the literature that social factors significantly affect the sense of belonging and neighbourhood attachment. The results also support the mediating role of a sense of belonging in the relationship between social factors and neighbourhood attachment. Fostering social trust and support within neighbourhoods is crucial for promoting neighbourhood attachment. This can be achieved through community-building activities and community-shared places. By fostering social trust and support, neighbourhoods can become vibrant, thriving communities where individuals feel a sense of belonging and connection.

**Keywords:** Social factors, Neighbourhood attachment, sense of belonging

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## **INTRODUCTION**

A cognitive-emotional bond that individuals or groups develop towards places people feel connected to is known as place attachment (Hidalgo & Hernández, 2001). According to specific research, social interaction is lower in urban neighbourhoods. Because of public health initiatives, the situation has deteriorated during COVID-19. It prohibited people from engaging in social, cultural, and religious activities as they had done prior to the epidemic (Pfefferbaum & North, 2020). Less social interaction can affect their attachment to places (Jaśkiewicz & Besta, 2018). Social impacts refer to the net influence of activity on a community and the welfare of its residents (Leh et al., 2017). This study focuses on social support and social trust (Carpiano, 2006; Putnam, 2000). Trust promotes frequent interaction in the community, resulting in reciprocal relationships (Sapountzis et al., 2013). Increased social trust is associated with good neighbour relationships (Li et al., 2005) and involvement in informal social networks (Delhey & Newton, 2003). Community-based supportive relationships may result in greater place attachment (Curley, 2010).

Place attachment contributes to effective place-making (Abdul Latip et al., 2023). A sense of belonging reinforces a person's sense of "feeling at home" (Seamon, 2015; Smith, 2017). Thus, this study explores the impacts of social factors on neighbourhood attachment and the mediating role of a sense of belonging in the relationship between social factors and neighbourhood attachment in the Penang context.

## **RESEARCH BACKGROUND**

### *Social factors and sense of belonging*

The frequency of interaction among residents is referred to as social support (Weenig & Schmidt, 1990). Sociologically, social trust is best understood by stressing its crucial relational attribute (Nahapiet & Ghoshal, 1998). Neighbourhood belonging refers to people's connections to their neighbourhood (Fone et al., 2006). Ann Game (2001) defines belonging as the process that helps people experience a sense of "coming home". According to a study by Richmond and Smith (2012), aboriginal youth are less likely to have a sense of belonging since they are likely to ask for support if they trust the support. Social support and trust can be fostered through interaction with people (Ter et al., 2009). Social interactions are critical in shaping and maintaining belonging (Ralph & Staeheli, 2011). People who engage in good interpersonal and social connections exhibit a strong sense of belonging and vice versa (Malone et al., 2012). For example, migrants with local friends in the area are more likely to say they have a strong feeling of belonging than establishing connections with non-local friends (Liu et al., 2022). Based on the above discussion, we propose the following hypothesis:

H1. Social factors are positively associated with a sense of belonging.

*Social factors and neighbourhood attachment*

In some studies, social factors tend to significantly impact neighbourhood attachment more than physical factors (Hidalgo & Hernández, 2001). Social support can be in three forms: personal (emotional), instrumental (functional), and informational. Personal support decreases social isolation while increasing a sense of belonging. The studies by Brown and Perkins (1992) found that social support was positively related to place attachment, such that people who received more social support from either friends or neighbours reported a more robust attachment. A sense of trust in other residents and the community will result in a positive emotional connection to the community, such as place attachment (Wu et al., 2019). Stedman (2003) also found that people with a higher level of trust in their community are more likely to have a stronger attachment to their residence. Based on the previous works and discussion, we propose the following hypothesis:

H2. Social factors are positively associated with neighbourhood attachment.

*Sense of belonging and neighbourhood attachment*

A sense of belonging represents the foundations of attachment to a place (Inalhan & Finch, 2004). On the other side, Temkin & Rohe (1998) reveal that attachment is one of the crucial components of neighbourhood belonging. A sense of belonging has always been used as one of the concepts of place attachment. (Giuliani, 2003). Occasionally, the terms "belonging" and "attachment" are used interchangeably to describe one another. For example, Pardede et al. (2021) state that a sense of belonging is attached to an environment. Inalhan & Finch (2004) describe place attachment as an experience of having a sense of belonging at a particular time. No proof shows that a sense of belonging might affect place attachment. However, abundant statements or research indicate they have some connection. Based on the discussion, we propose the following hypothesis:

H3. Sense of belonging is positively associated with neighbourhood attachment.

Although the sense of belonging and place attachment are always studied together, the mediating effect of the sense of belonging has yet to be examined on the relationship between social factors and neighbourhood attachment. Its mediating role is examined in the relationship between marital status and suicidal ideation by McLaren et al. (2015) and school bullying and academic performance by Huang (2022). According to previous research, the connection between social factors and neighbourhood attachment has been researched by Ujang (2012).

Evidence suggests that exposure to social factors could affect the development of a sense of belonging to the place (Vasovic et al., 2012). Thus, based on these previous works, we propose the hypothesis as follows:

H4. Sense of belonging mediates the relationship between social factors and neighbourhood attachment.

## **MATERIALS AND METHOD**

### *Study area*

To minimise misleading or biased results, the selection of study areas is only focused on Penang Island, Malaysia. Each neighbourhood is selected from the Southwest and Northeast Districts. The chosen housing type in this study is only limited to landed houses because living in different housing types might lead to different living experiences. The property values of the selected neighbourhoods are medium to high range, approximately between RM 400,000 to RM 1,000,000. Tanjung Tokong and Bandar Bayan Baru are identified as the study areas of this study.

### *Survey instrument*

A questionnaire survey was administered amongst 362 respondents in both neighbourhoods to collect the data. The respondents were selected via multi-stage cluster sampling. It involved two stages which were stratified sampling and simple random sampling. The respondents were requested to answer 30 questions, including demographic backgrounds, assessment of neighbourhood attachment, sense of belonging and social factors. The first section of the questionnaire included eight socio-demographic questions that included nationality, race, gender, age, education level, household income, ownership status and length of residence (Kao & Sapp, 2020; Lestari & Sumabrata, 2018).

Neighbourhood attachment was assessed in two sub-dimensions, place dependence and social bonding, with ten questions. Place dependence was measured by adapting five items from the survey by G. Brown & Raymond (2007). Next, two items of social bonding from (Kyle et al., 2005) and three items from (Raymond et al., 2010) were modified to fit the neighbourhood context. Four items are selected from the study of Abdullah et al. (2013) to assess a sense of belonging. To operationalise social factors, 4 items, each social trust and support (Curley, 2010), were applied. All items were measured on a five-point Likert scale, with respondents being asked how strongly they agreed or disagreed with each statement (from 1- strongly disagree to 5- strongly agreed), except social support items that were assessed by rating the availability of support in their neighbourhoods from 1- little available support to 5- much support.

## **RESULTS**

### *Respondent profiles*

There are 362 total responses. The respondents are, on average, 41 years old (SD= 17.44). 17.7 years are spent in residence on average (SD= 13.3). 51.4% of these respondents are men, 98.3% are Malaysian, and 68.2% own homes. 49.2% of respondents identify as Chinese, 39.5% as Malay, 9.4% as Indian, and 1.9% as belonging to other races. In addition, 58.6% have a university or college degree, 32.6% have a secondary degree, 4.7% have a primary degree, and 4.1% have a non-traditional degree. According to the respondents' monthly household incomes, 26.8% make less than RM3000, 26.5% between RM 3001 and RM 5000, 18.8% between RM 5001 and RM 7000, 8.0% between RM 7001 and RM 9000, 8.0% make more than RM 9001 and 11.9% have no idea.

### *Measurement model results*

As for the indicator reliability, all the loadings are above 0.70 except the Social Bonding 5, which only recorded 0.651 (Table 3). Next, the threshold values of Cronbach's alpha and composite reliability are 0.7 (Henseler et al., 2016) to assess internal consistency reliability. Then, to measure convergent validity, an acceptable AVE value is 0.50 or higher (Hair et al., 2021). Table 1 shows that all constructs fulfil the requirements. Discriminant validity was assessed by (1) (Fornell & Larcker, 1981) criterion, (2) the heterotrait-monotrait (HTMT) (Henseler et al., 2015), and (3) cross-loading (Garson, 2016). The square root of AVE was more significant than the intercorrelations of the constructs in the model (Table 1), the HTMT ratios were less than 0.90 (Table 2), and the variable's loading on its construct was higher than its correlation with any other variables (Table 3). In short, all results proved this model's reliability and validity.

**Table 1:** Results of Fornell-Larcker criterion and reliability assessment.

	<b>Place Dependence</b>	<b>Social Bonding</b>	<b>Sense of Belonging</b>	<b>Social Support</b>	<b>Social Trust</b>
<b>Place Dependence</b>	0.799				
<b>Social Bonding</b>	0.644	0.813			
<b>Sense of Belonging</b>	0.658	0.751	0.815		
<b>Social Support</b>	0.378	0.564	0.479	0.810	
<b>Social Trust</b>	0.418	0.578	0.495	0.676	0.871
<b><math>\alpha</math></b>	0.858	0.868	0.830	0.825	0.894
<b>CR</b>	0.859	0.876	0.833	0.828	0.898
<b>AVE</b>	0.638	0.661	0.664	0.655	0.759

**Table 2:** Results of HTMT ratios.

	<b>Place Dependence</b>	<b>Social Bonding</b>	<b>Sense of Belonging</b>	<b>Social Support</b>	<b>Social Trust</b>
<b>Place Dependence</b>					
<b>Social Bonding</b>	0.748				
<b>Sense of Belonging</b>	0.778	0.887			
<b>Social Support</b>	0.446	0.666	0.577		
<b>Social Trust</b>	0.478	0.650	0.572	0.779	

**Table 3:** Results of factor loading and cross loading.

	<b>Place Dependence</b>	<b>Social Bonding</b>	<b>Sense of Belonging</b>	<b>Social Support</b>	<b>Social Trust</b>
<b>PD1</b>	<b>0.752</b>	0.531	0.478	0.314	0.382
<b>PD2</b>	<b>0.827</b>	0.509	0.508	0.267	0.301
<b>PD3</b>	<b>0.804</b>	0.505	0.567	0.332	0.337
<b>PD4</b>	<b>0.781</b>	0.458	0.494	0.290	0.317
<b>PD5</b>	<b>0.826</b>	0.564	0.577	0.306	0.334
<b>SB1</b>	0.543	<b>0.802</b>	0.609	0.418	0.474
<b>SB2</b>	0.578	<b>0.849</b>	0.638	0.499	0.545
<b>SB3</b>	0.544	<b>0.870</b>	0.646	0.462	0.478
<b>SB4</b>	0.463	<b>0.872</b>	0.626	0.488	0.512
<b>SB5</b>	0.485	<b>0.651</b>	0.526	0.423	0.318
<b>SOB1</b>	0.561	0.638	<b>0.840</b>	0.359	0.437
<b>SOB2</b>	0.565	0.612	<b>0.861</b>	0.407	0.436
<b>SOB3</b>	0.460	0.588	<b>0.758</b>	0.409	0.370
<b>SOB4</b>	0.555	0.610	<b>0.796</b>	0.390	0.365
<b>SUP1</b>	0.360	0.526	0.486	<b>0.823</b>	0.594
<b>SUP2</b>	0.306	0.413	0.349	<b>0.800</b>	0.471
<b>SUP3</b>	0.219	0.428	0.326	<b>0.800</b>	0.483
<b>SUP4</b>	0.330	0.453	0.382	<b>0.815</b>	0.624
<b>TRU1</b>	0.341	0.413	0.373	0.508	<b>0.810</b>
<b>TRU2</b>	0.363	0.472	0.408	0.594	<b>0.891</b>
<b>TRU3</b>	0.368	0.556	0.454	0.623	<b>0.894</b>
<b>TRU4</b>	0.384	0.564	0.484	0.623	<b>0.888</b>

*Structural model results*

All VIF outputs are significantly below the standard cut-off threshold 3.0 (Hair et al., 2019). Moreover, near 1.0. as shown in Table 4. For the direct relationships, the impacts of social factors on the sense of belonging (H1;  $\beta = 0.533$ , t-value = 12.173,  $p < 0.01$ ) and neighbourhood attachment (H2;  $\beta = 0.243$ , t-value = 5.005,  $p < 0.01$ ) are positive and significant. The results are in accordance with earlier research (Ralph & Staeheli, 2011) (Hidalgo & Hernández, 2001). As hypothesised, a sense of belonging also positively and significantly impacts neighbourhood attachment (H3;  $\beta = 0.650$ , t-value = 15.406,  $p < 0.01$ ). The results show that the indirect relationship is positive and statistically significant (H4;  $\beta = 0.347$ , t-value = 9.379,  $p < 0.01$ ). The Variance Accounted For (VAF) value is 58.8%, which suggests that social factors partially mediate neighbourhood attachment through a sense of belonging. Table 4 presents the results of the hypothesis testing of all relationships.

The R<sup>2</sup> values of the sense of belonging and neighbourhood attachment are 0.284 and 0.650, respectively. This indicates that this model explains 28.4% of the variation in the sense of belonging and 65.0% of the variance in neighbourhood attachment. According to Chin (1998), the  $f^2$  value 0.02 represents a small, 0.15 represents a moderate, and 0.35 represents a substantial effect size. Social factors substantially affect the sense of belonging (0.397), while moderate effects on neighbourhood attachment (0.121). Sense of belonging is proven to have a substantial effect on neighbourhood attachment (0.865), as shown in Table 4. The fold, k and repetitions used in this study are 10. The Q<sup>2</sup> values for place dependence (Q<sup>2</sup> = 0.174), social bonding (Q<sup>2</sup> = 0.379), sense of belonging (Q<sup>2</sup> = 0.278), social support (Q<sup>2</sup> = 0.810) and social trust (Q<sup>2</sup> = 0.863) are more significant than 0. In short, this model's explanatory and predictive powers are deemed adequate.

**Table 4:** Results of path coefficient and hypothesis testing (direct and indirect effects).

Hypo thesis	Relationship	$\beta$	T value	P value	Decision	$f^2$	VIF
H1	SF -> SOB	0.533	12.173	0.000	Supported	0.397	1.000
H2	SF -> NA	0.243	5.005	0.000	Supported	0.121	1.397
H3	SOB -> NA	0.650	15.406	0.000	Supported	0.865	1.397
H4	SF -> SOB -> NA	0.347	9.379	0.000	Supported	-	-

Note: NA = Neighbourhood Attachment, SOB = Sense of Belonging, SF = Social Factors

**DISCUSSION**

The mean value of neighbourhood attachment is 3.78 out of 5.00 scale. Neighbourhood attachment was assessed by two variables: place dependence and

social bonding (Kyle et al., 2005; Stokols & Shumaker, 1981). According to the results of SPSS, the mean score of place dependence, which was recorded at 3.93 on a scale of 5.00, is slightly higher than the mean score of social bonding, which indicated 3.64 out of 5.00 scale. This shows that most of the residents have a high level of attachment to their neighbourhoods.

The neighbourhood attachment level is proven to be positively associated with social factors. Mesch & Manor (1998) found that residents feel attached to their neighbourhoods when the community supports their needs, which aligns with this study's findings. In society, people rely on friends or neighbours to get support when they are not with their family. Lewicka (2011) found that place-attached persons tended to have a higher level of trust in people; it somehow showed a relationship between social trust and neighbourhood attachment, which aligns with this study's finding.

Social factors are proven to mediate neighbourhood attachment via the sense of belonging partially. Although social factors could directly impact neighbourhood attachment, the relationship can also be indirectly impacted by a sense of belonging. The study has confirmed the significance and presence of the mediator. The higher the sense of belonging, the higher the residents' neighbourhood attachment level.

#### *Theoretical and practical implications*

As mentioned, only some studies on the sense of belonging as a mediator are conducted in the residential context. Little is known about its mediation effect, specifically in the relationship between social factors and neighbourhood attachment. Thus, the main theoretical implication of this study is to clarify how social factors, sense of belonging and neighbourhood attachment relate to each other using this scenario-based study in the Penang setting. The study's practical contributions are expected to offer direction for local governors, developers, urban planners and designers, improving residents' attachment and sense of belonging towards their neighbourhoods in Penang.

#### *Limitations and Direction for Future Studies*

The only participants in this study's sample are those living in Penang Island's neighbourhoods. The results might not apply to those who live in other parts of Malaysia or other regions. It can be proposed to collect a more comprehensive sample of residents from other places because it can generalise public opinion. Besides, it is also suggested that other mediators or moderators be considered in future research. Future studies may further look at this mediating role in other settings or among people from varied demographic backgrounds to confirm the study's findings.



## ACKNOWLEDGEMENTS

The authors would like to thank the Universiti Sains Malaysia under Short Term Grant Scheme with Project Code: 304/PPBGN/6315315 and the School of Housing, Building and Planning, Universiti Sains Malaysia, for financially supporting this research.

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Received: 26<sup>th</sup> June 2023. Accepted: 11<sup>th</sup> August 2023