

# DISPLACEMENT, COMMUNITY RESILIENCE, AND THE IMPORTANCE OF PLACE: A STUDY OF TWO CHILEAN COMMUNITIES

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## Abstract

Socio spatial relationships of people and communities are affected by processes of displacement due to socio-natural disasters. Based on the experiences of the disintegrated community of Chaitén by the eruption of the Chaitén volcano and the community which remained united in Constitución after the earthquake of 2010, this research explores how the experienced processes affect levels of place identity and place attachment, as well as in sense of community and participation. The studied communities express different spatial and relational with their origin and actual neighborhood. Differences evidence that community bonds and psychological aspects must be considered as central in the development and implementation of displacement or reconstruction strategies post disasters. The survey considered a total of 224 individuals.

**Keywords :** sense of community; place attachment; place identity; disasters; participation; displacement

## Introduction

The concept of disaster has moved from natural to socio-natural. According to Razeto (2013), it is essential to consider the relationship between nature and society to expand the understanding of the phenomenon and potential response actions. Disasters, by generating collective actions, become not only social



catalysts, but also social phenomena that force institutions to think about responses beyond the material.

Studies on involuntary displacement establish that post-displacement adjustment will depend on quality differences between old and new residential environments, opportunities for relationships, satisfaction of self-esteem needs, and systems of community control and change (Heller, 1982). In these contexts, as Manzo (2014) points out, the traditional way of understanding with place is deployed in a complex and multifaceted way that requires reflection on the conditions in which people affected by displacement live.

From a community environmental perspective, we propose the need to analyze environmental disruption from a community-centered framework, which incorporates physical and psychological concepts (Manzo & Perkins, 2006; Vidal, Berroeta, Di Masso, Valera, & Pero, 2013) that address with place and people (Mihaylov & Perkins, 2014).

Assuming this perspective, this research explores the affective dimensions (place attachment) and cognitive dimensions (place identity) with the space and the relational dimensions (sense of community) and behavioral dimensions (participation) with the neighborhood, in two communities affected by a socio-natural disaster: a displacement due to the eruption of a volcano and another due to a reconstruction process in the same settlement, as a result of an earthquake. Specifically we pose the question: what levels of place attachment, place identity, sense of community and civic participation reach people who were displaced after a volcanic eruption and people who had their homes rebuilt in the same place after an earthquake? The hypothesis underlying this research is that people who remained in their place of origin present different degrees of

place attachment, place identity, sense of community, and participation from those who were displaced.

Psychosocial literature has focused fundamentally on the study of the psychological consequences for the inhabitants of localities affected by disasters (Bonanno, Galea, Bucciarelli, & Vlahow, 2006, García, Reyes, & Cova, 2014), leaving aside the psycho-environmental study of these phenomena. It has been established that the severity of the psychological reaction is negatively related to well-being (García et al., 2014), which will depend on the magnitude of the destruction and the demographic and social characteristics of the inhabitants (Norris, Friedman, & Watson , 2002). Research carried out after earthquake and tsunami events concludes that the loss of home is a much greater primary stress factor than displacement processes. Joh (1997) reports that those people who have lost their homes,

From a psycho-environmental perspective, various studies suggest that the sense of community, place attachment and civic participation are central to the degree of resilience achieved by communities faced with socio-natural disasters (Bird, Gísladóttir, & Dominey-Howes , 2011; Norris, Stevens, Pfefferbaum, Wyche & Pfefferbaum, 2008). The sense of community influences the psychological adjustment to the experience (Banyard & Williams, 2007; Greenfield & Marks, 2010) and levels of attachment influence the acceptance of environmental change (Ruiz & Hernández, 2014).

It is known that the impact of post-catastrophe displacement is adverse (Norris, Watson, Hamblen, & Pfefferbaum, 2005), however, it is unknown what happens in communities that rebuild their homes in the same place. There are no studies that describe the spatial (place attachment and place identity) and social (sense

of community and participation) in communities affected by socio-natural disasters, even though there is ample evidence regarding the importance of these factors in the quality of community life.

In studies conducted by Perkins (Manzo & Perkins, 2006; Perkins & Long, 2002), it is concluded that place attachment and sense of community play an important role in neighborhood revitalization. More specifically, it is stated that in cases where there is no emotional connection of people to places, they are not usually committed enough to work with neighbors and local institutions to improve their environment.

There is agreement that sense of community (SC) is the perception of belonging, the feeling of cohesion and emotional connection between people in a community that is based on a shared history and interests (Long & Perkins, 2003). SC mainly refers to an individual or collective evaluation experience that operates as a resource of community life (Nowel & Boyd, 2010). SC has been associated with social capital (Norris et al., 2008), psychological well-being and community commitment (Nowel & Boyd, 2010).

The central approach of the main studies on place identity (Bonaiuto & Bonnes, 2000; Proshansky, Fabian, & Kaminoff, 1983; Twigger-Ross, Bonaiuto, & Breakwell, 2003) is that personal identity is constructed in relation to the physical environment of the individual. Likewise, their social identity is constructed by their membership in social categories such as: sex, race or social class. Place identity is then considered to be a dimension of the self, which defines identity in relation to the physical environment that satisfies biological, psychological, social and cultural needs (Proshansky et al., 1983).

Place attachment refers to the emotional bond that people establish with places (Lewicka, 2011; Scannell & Gifford, 2010a; 2010b), regardless of whether it is positive (Hidalgo & Hernandez, 2001) or negative (Fried, 1963). A disruption of place attachment affects individual and community self-definition (Brown & Perkins, 1992) and can hinder community resilience (Norris et al., 2008).

Civic participation includes participation in neighborhood activities and is operationalized through belonging to entities or attending activities (Perkins, Florin, Rich, Wandersman, & Chavis, 1990). Participation in neighborhood affairs is related to attachment to the neighborhood (Cuba & Hummon, 1993). Participation is an example of the action-transformation dimension that, together with symbolic identification, explains the appropriation of the neighborhood (Korosek-Serfaty, 1976; Pol, 2002) and attachment to it (Vidal & Pol, 2005). Recently Vidal et al (2013) tested a structural equation model that confirms the incidence of civic participation on the sense of community and place attachment, using the same instruments that we used in this research, in four neighborhoods in Chile.

Considering this background and the lack of research in post-disaster resettlement contexts, in this research we opted for a multi-stage mixed approach, applying quantitative instruments and group interviews. In this text the results of the first quantitative phase are reported.

### **Two cases, two processes**

The cases studied correspond to the cities of Chaitén and Constitución. Both towns and their inhabitants experienced different post-catastrophe processes in relation to the State's actions in resolving their negative repercussions. The city of Chaitén is located in the tenth region of the country and is located between

the sea and the mountain range. Three main volcanoes stand out, including the Chaitén volcano. On May 2, 2008 and as a result of the eruption of this volcano, the city had to be evacuated within a radius of 50 kilometers. 4,700 people corresponding to 1,500 families were located in cities such as Puerto Montt and Futaleufú, among others (Marchant, 2010). To date, public organizations do not have clarity about the fate of the community residing outside of Chaitén,

The subsequent process of acquiring new homes was carried out individually through a monetary subsidy provided by the State, with which each family purchased a new home. With this bonus, families managed their homes in the real estate market (personal communication, Inostroza & Millaquen, 2013). The community was fragmented because the conditions for a collective proposal were not generated.

As a result of the investigations carried out for this investigation, it was found that currently approximately 200 families of Chaiteninos live in a large residential sector located north of the city of Puerto Montt called Alerce. Here, families from four different neighborhoods who reside in single-family homes of around 44 m<sup>2</sup> were surveyed (personal communication, Inostroza & Millaquen, 2013).

The case study in Constitución, a coastal city located in the seventh region of the country, is different. As a result of the earthquake and subsequent tsunami that impacted the Chilean coast on February 27, 2010 (Larrañaga & Herrera, 2010), the Cerro O'Higgins housing complex resulted in irreparable damage to its infrastructure, which is why the complete demolition of the condominium was determined. social. After a reconstruction process, in March 2013 a new condominium was delivered consisting of three four-story blocks and 48

apartments, in which 142 inhabitants currently reside, all belonging to the community of origin of the neighborhood.

## **Method**

### **Participants**

In both Chaitén and Constitución, a survey was carried out using a non-probabilistic convenience sample. This sample is made up of 144 displaced inhabitants of the city of Chaitén ( $N = 144$ ), 95 women, 49 men, which is estimated to correspond to almost the entire universe of displaced people found in sector <sup>1</sup>. They had an average age of 45.12 years ( $SD = 16.976$ ) and an average number of years living in the current neighborhood of 3.48 years ( $SD = 1.540$ ). In Constitución, 80 people participated (22 women, 58 men) from a universe of 142 inhabitants who had an average age of 42.71 years ( $SD = 14.664$ ) and an average number of years living in the current neighborhood of 12.42 years ( $SD = 7.061$ ). . All participants lost their homes as a result of the disasters.

### **Techniques**

To measure social and spatial attachment, the scales of Scannell and Gifford (2010b) were adapted, which in their original version report a Cronbach's Alpha of 0.78, which are made up of four and five items respectively, with a Likert-type response format (1 = Not at all to 6 = Very much), which were answered in relation to the neighborhood of origin and the current one. For example: "People like me lived in that place" and "Public spaces here are special." An exploratory factor analysis was carried out that corroborated the factor structure of the original scales. The reliability of the scale measured by Cronbach's Alpha coefficient is, for past social attachment (PASBp) 0.914; for past spatial



attachment (PAEBp) 0.884; current social attachment (PASBa) 0.898; and current spatial attachment (PAEBa) 0.885.

To measure the degree of identification with the place, the global place identity scale of Vidal, Valera and Però (2010) was adapted, taken from Hernández, Hidalgo, Salazar and Hess (2007) whose Cronbach's Alpha is 0.94. The scale is made up of five items with a Likert-type response format that had to be answered regarding the neighborhood of origin, the current one, and the city. For example: "I feel like I belong in this neighborhood." An exploratory factor analysis was carried out that corroborated the factor structure of the original scale. The reliability of the scale, measured with Cronbach's Alpha coefficient for past place identity (PIBp) is 0.920 and for current place identity (PIBa) is 0.892.

For the sense of community measure, the brief scale of Long and Perkins (2003) was adapted, which in its original version reports a Cronbach's Alpha of 0.74. The scale is made up of eight items with a Likert-type response format, which had to be answered in relation to the current neighborhood. For example: "Many of my neighbors know me." An exploratory factor analysis was carried out that corroborated the original structure of the scale. The reliability of the scale, measured by Cronbach's Alpha coefficient, is 0.838. The individual score on the scale was obtained by calculating the average of the eight items.

To measure civic participation, the Long and Perkins (2003) scale was adapted, which in its original version reports a Cronbach's Alpha of 0.78. The scale is made up of ten items with a Likert-type response format, which had to be answered in relation to the current neighborhood. For example: "Participate in some way in your neighborhood association." An exploratory factor analysis



was carried out that corroborates the dimensionality of the original scale. The reliability of the scale measured by Cronbach's Alpha coefficient is 0.909. The individual score on the scale was obtained by calculating the average of the ten items.

### **Procedure**

Trained psychology students surveyed the participants at their residence in September 2013. After applying the questionnaire, the objectives and scope of the research were explained. An informed consent was requested to be signed, reviewed and approved by the ethics committee of the Faculty of Medicine of the University of Valparaíso.

### **Analysis**

A descriptive analysis of the population and instruments used was carried out. To test the study hypotheses, an analysis of comparison of means of the subscales by sector was carried out using the Student T Test. Linear relationships were established between the subscales by sector with the Pearson correlation coefficient. SPSS Statistics 17.0.2 software was used.

### **Results**

Table 1 reports the means that consider the Chaitén sample. The highest corresponds to GDPp (4.92), while the lowest is PPP (1.57). Of the variables that account for the time difference, those that measure the past (GDPp, PASBp and PAE-Bp) all have a higher mean than those of the current neighborhood (PIBa, PASBa and PAEBa). In the past neighborhood variables, the highest mean is 4.92 (GDPp), the lowest is 4.59 (PAEBp). In the current neighborhood averages, the highest average is 2.94 (PASBa), while the lowest is 2.59 (PAEBa). The variable sense of community (PSCB) has a mean of 3.61.

**TABLA 1.**  
*Media obtenida para los diferentes factores en Chaitén y Constitución\**

Sub-escala	Sector			
	Chaitén		Constitución	
	$\mu$	Error típ.	$\mu$	Error típ.
Identidad p.	4.92	0.099	4.29	0.166
Identidad a.	2.92	0.110	4.67	0.164
Apego Social p.	4.85	0.112	3.99	0.184
Apego Social a.	2.94	0.119	4.43	0.159
Apego Espacial p.	4.59	0.105	2.47	0.174
Apego Espacial a.	2.59	0.105	4.96	0.131
Sentido Comunidad	3.61	0.101	5.04	0.115
Participación Cívica	1.57	0.047	2.53	0.279

\* Todas las variables hacen referencia a la relación con el barrio pasado (p.) o actual (a.). Fuente: elaboración propia

Also in Table 1 are reported the means that consider the Constitución sample. The highest average corresponds to PSCB (5.04) while the lowest is PAEBp (2.47). Of the variables that account for the time difference, those that measure current neighborhood (GDPBa, PASBp and PAEBa) all have a higher mean than the past neighborhood variables (GDPp, PASBp and PAEBp). In the past neighborhood variables, the highest is 4.29 (GDPp), while the lowest is 2.47 (PAEBp). In the current neighborhood averages, the highest average is 4.96 (PAEBa) and the lowest is 4.43 (PASBa). The variable sense of community (PSCB) has a mean of 5.04.

The means indicated for average identity with the past neighborhood (PIBp) and current (PIBa) present for Chaitén, as indicated in Table 1, a difference between the means that ranges from 4.92 (PIBp) to 2.92 (PIBa). Meanwhile, Constitución presents means that range from 4.29 (GDPp) to 4.67 (GDPBa) (Table 1). Thus, while in Chaitén the average decreases from GDPp to GDPa, in Constitución it increases from GDPp to GDPa, as seen in Figure 1.

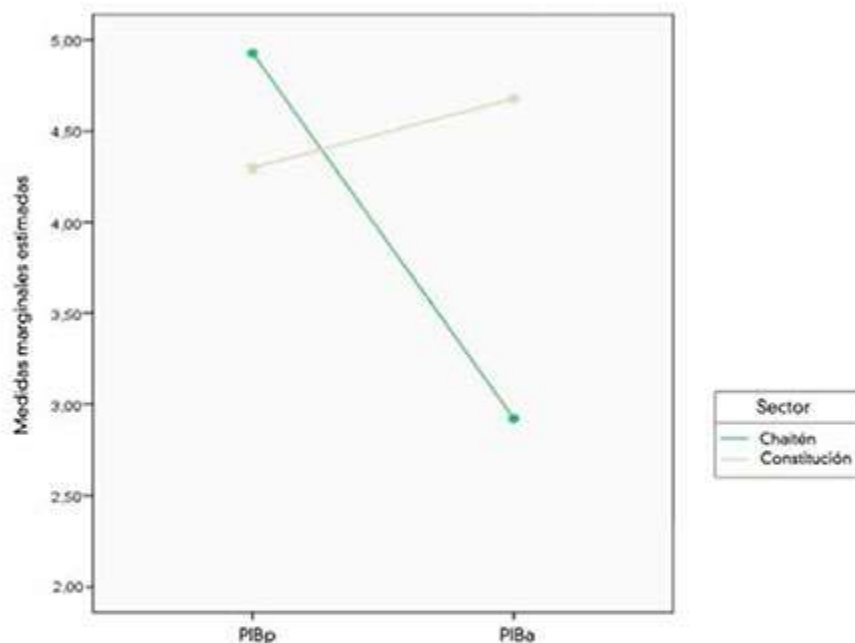


Figura 1. Media de identidad en cuanto a barrio pasado (PIBp) y actual (PIBa)

Fuente: elaboración propia

The average social attachment in the past (PASBp) and current (PASBa) neighborhood presents the same situation as (PIBp) and (PIBa): the directionality is different in the measures obtained for Chaitén and Constitución. While, as [Table 1](#) indicates, in Chaitén PASBp (4.85) is greater than PASBa (0.94), in Constitución they are inverse (PASBp = 3.99; PASBa = 4.43), the direction of the change being upward, as seen in the [Figure 2](#).

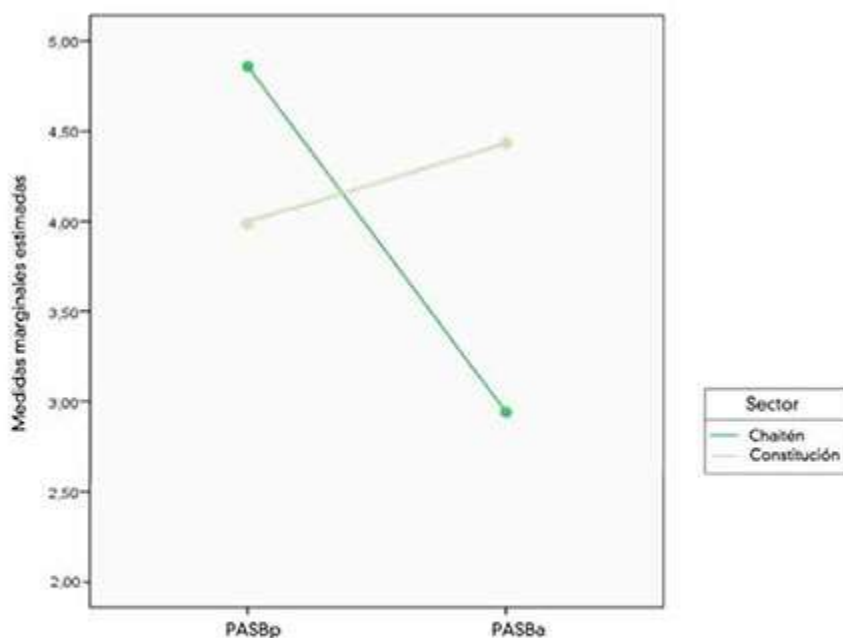


Figura 2. Media de apego social en el barrio pasado (PASBp) y actual (PASBa)

Fuente: elaboración propia

The means of spatial attachment in the past (PAEBp) and current (PASBa) neighborhood for Chaitén and Constitución vary in direction between lower and higher means, a situation that, when represented graphically (Figure 3), indicates a decrease in PAEBp in Chaitén (4.59) to PAEBa (2.59) ( Table 1 ). Meanwhile, Constitución presents an ascending direction with means ranging from PAEBp (2.47) to PAEBa (4.96) ( Table 1 ).

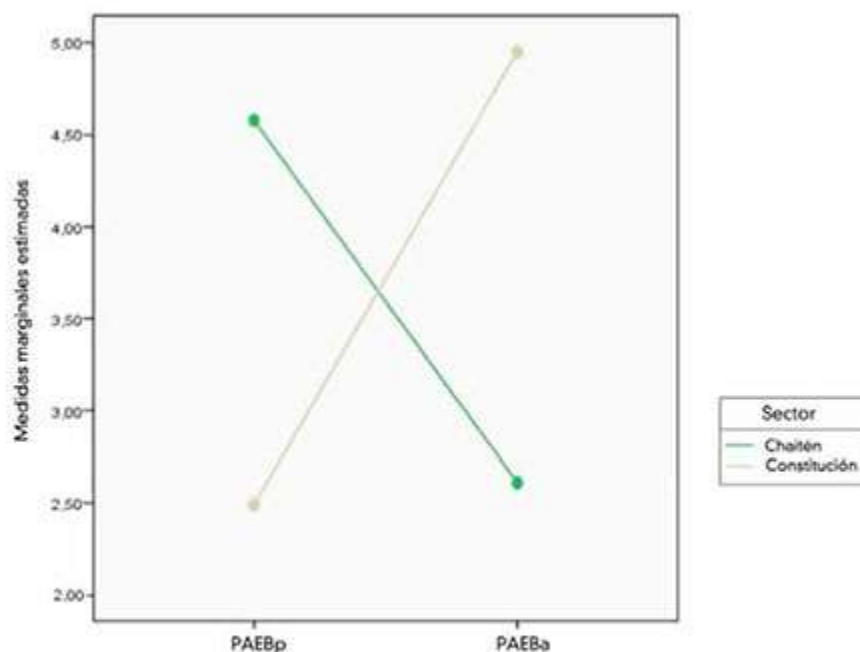


Figura 3. Media de apego espacial en el barrio pasado (PAEBp) y actual (PAEBa)

Fuente: elaboración propia

Table 2 shows the differences in means between Chaitén and Constitución of all the measured variables. There are significant differences in all of them.

**TABLA 2.**

*Diferencias de media entre las muestras de Chaitén y Constitución por cada sub-escala\**

Sub-escala		Diferencias relacionadas			t	gl	Sig. (bilateral)
	Media	Error típ. de la diferencia	95% Intervalo de confianza para la diferencia				
			Inferior	Superior			
Identidad p.	0.62	0.18	0.26	0.98	3.44	222	0
Identidad a.	-1.75	0.19	-2.14	-1.36	-8.85	149.18	0
Apego social p.	0.86	0.20	0.45	1.26	4.22	222	0
Apego social a.	-1.48	0.19	-1.88	-1.09	-7.46	164.32	0
Apego espacial p.	2.11	0.20	1.71	2.51	10.38	137.58	0
Apego espacial a.	-2.37	0.16	-2.7	-2.03	-14.08	173.21	0
Sentido de comunidad	-1.43	0.16	-1.74	-1.11	-8.9	222	0
Participación cívica	-0.95	0.21	-1.38	-0.52	-4.36	222	0

\* Todas las variables hacen referencia a la relación con el barrio pasado (p.) o actual (a.).

Fuente: elaboración propia

The correlations of the variables measured in the town of Chaitén are presented in Table 3. sense of community in the neighborhood (PSCB) has a significant relationship ( $p < 0.01$ ) with GDPa ( $r = 0.47$ ); PASBa ( $r = 0.58$ ); PAEBa ( $r = 0.41$ ) and PPC ( $r = 0.50$ ). Past neighborhood identity (GDPp) is significantly related ( $p < 0.01$ ) with PASBp ( $r = 0.72$ ); PAEBp ( $r = 0.72$ ); and a weak significant ( $p < 0.05$ ) inverse relationship with GDPa ( $r = -0.17$ ) and PAEBa ( $r = -0.20$ ). Social attachment to the past neighborhood (PASBp) is significantly related ( $p < 0.01$ ) with PAEBp ( $r = 0.76$ ). Spatial attachment with the current neighborhood (PAEBa) has a significant relationship ( $p < 0.01$ ) with GDPa ( $r = 0.63$ ); PASBa ( $r = 0.59$ ). Social attachment with the current neighborhood (PASBa) has a significant relationship ( $p < 0.01$ ) with GDPa ( $r = 0.77$ ); PAEBa ( $r = 0.59$ ); and PPC ( $p < 0.01$ ,  $r = 0.26$ ).

**TABLA 3.**  
*Correlaciones entre Sub-escalas de Chaitén\*\*\**

Correlaciones	PIBp	PIBa	PASBp	PASBa	PAEBp	PAEBa	PSCB	PPC
Identidad p.	-							
Identidad a.	-0.174*	-						
Apego social p.	0.725**	-0.023	-					
Apego social a.	-0.101	0.77**	0.055	-				
Apego espacial P.	0.72**	-0.08	0.746**	0.028	-			
Apego espacial a.	-0.208*	0.637**	-0.032	0.596**	-0.063	-		
Sentido de comunidad	0.083	0.475**	0.16	0.587**	0.146	0.417**	-	
Participación cívica	0.042	0.305**	0.139	0.26**	0.12	0.348**	0.506**	-

\* $p < 0.05$ ;

\*\* $p < 0.01$

\*\*\* Todas las variables hacen referencia a la relación con el barrio pasado (p.) o actual (a.).

Fuente: elaboración propia

Table 4 presents the correlations of variables measured in Constitución. Sense of community in the neighborhood (PSCB) correlates significantly ( $p < 0.01$ ) with GDPp ( $r = 0.40$ ); GDPa ( $r = 0.68$ ); PASBp ( $r = 0.50$ ); PASBa ( $r = 0.72$ ); PAEBp ( $r = 0.40$ ); and PAEBa ( $r = 0.66$ ). Identity with the past neighborhood (GDPp) correlates significantly ( $p < 0.01$ ) with GDPa ( $r = 0.45$ ); PASBp ( $r = 0.74$ ); PASBa ( $r = 0.47$ ); and PAEBp ( $r = 0.54$ ). Identity with the current neighborhood (PIBa) correlates significantly with PASBp ( $r = 0.45$ ); PASBa ( $r = 0.76$ ); PAEBa ( $r = 0.50$ ); and PSCB ( $r = 0.68$ ). Social attachment to the past neighborhood (PASBp) correlates significantly ( $p < 0.01$ ) with GDPBa ( $r = 0.45$ ); PASBa ( $r = 0.58$ ); PAEBp ( $r = 0.50$ ); and significantly weaker with PAEBa ( $p < 0.01$ ,  $r = 0.31$ ).



*Tabla 4. Correlaciones entre sub-escalas de Constitución\*\*\**

Correlaciones	PIBp	PIBa	PASBp	PASBa	PAEBp	PAEBa	PSCB	PPC
Identidad p.	-							
Identidad a.	0.450**	-						
Apego social p.	0.740**	0.456**	-					
Apego social a.	0.470**	0.765**	0.582**	-				
Apego espacial p.	0.544**	0.364**	0.505**	0.381**	-			
Apego espacial a.	0.273*	0.640**	0.315**	0.509**	0.354**	-		
Sentido de comunidad	0.401**	0.689**	0.509**	0.726**	0.400**	0.663**	-	
Participación cívica	-0.01	0.189	0.013	0.053	0.0212	0.313**	0.0155	-

\* $p < 0.05$ ; \*\* $p < 0.01$  \*\*\* Todas las variables hacen referencia a la relación con el barrio pasado (p.) o actual (a.).

Fuente: elaboración propia

The results show that people who remained in their place of origin present different degrees of place attachment, place identity, sense of community and civic participation than those who were displaced.

## Discussion

The results of this exploratory research reveal that the affective dimensions (place attachment) and cognitive dimensions (place identity) with the place, as well as the relational dimensions (sense of community) and behavioral dimensions (participation) with the neighborhood, are greater for those who They stayed in their place of origin after the disaster occurred (Constitution).

In Chaitén, for the community displaced and disintegrated as a result of a volcanic eruption, the spatial (place attachment and place identity) with the neighborhood where they currently reside are different from those reported with their neighborhood of origin (Table 1). The mean values for place attachment and place identity do not exceed 3 points, while the means related to the previous neighborhood are all higher than 4.5. The greatest difference occurs between the place identity with the current neighborhood (2.92) and the previous neighborhood (4.92), which supports the approaches of the disruption

of spatial and their paradoxical manifestations. These results are consistent with the findings of Ruiz and Hernández (2014), who after studying the before-after with the place in a community affected by the eruption of a volcano in the Canary Islands in Spain, explain that the differences in favor of the past place are due to the fact that place attachment is built from an experience of continuity, the result of daily interactions with space, that usually remain over time even when people are forced to abandon it. Place identity, because it is part of social identity, is a more stable bond and therefore more difficult to modify.

In Constitución, whose residences were rebuilt in the same place after being destroyed as a result of an earthquake, the means of spatial ties (spatial attachment and place identity) with the neighborhood where they currently reside are greater than 4.6, while the means in relation to the previous neighborhood does not exceed 4.3. In this case, the greatest difference occurs between spatial attachment to the current neighborhood (4.96) and the previous neighborhood (2.47). These results can be associated with studies that suggest that place attachment is important for the degree of resilience achieved by communities faced with disasters (Bird et al., 2011; Norris et al., 2008).

The means for the relational dimensions with the neighborhood, in the case of Chaitén, show an average value of 3.61 for sense of community and a very low value (1.57) for civic participation. On the other hand, in Constitución they show a very high value (5.04) for sense of community and low (2.53) for civic participation. If we consider that in the case of Chaitén the community was dismembered after the catastrophe, while in Constitución the community was maintained, the results confirm two central aspects of the relationship between relational ties and the notion of community: that a break in the network of

relationships of mutual dependence (Sarason, 1974) deeply impact the sense of community and second, as Gilchrist (2009) suggests, these networks are the basis of collective commitment that allow effective community development. Therefore,

Along these same lines and as shown in the graphs in Figures 1, 2 and 3, the comparison of means between both neighborhoods for the spatial variables before and after shows an inverse directionality. In the case of Chaitén all the values present significant differences in favor of the previous neighborhood, however in Constitución the relationship is in favor of the current neighborhood. These results confirm extensive evidence of the negative impact of displacement on communities (Fried, 1963; Gibson, 2007), especially in poor communities (Manzo, 2014).

The results show us that forced displacement due to a catastrophe is a negative emotional experience that can contribute to strengthening attachment to the place that is abandoned. A finding that is consistent with what a group of authors call "the dark side of place attachment" (Chawla, 1992), a metaphor used to question the excessive emphasis that literature attributes to positive affects and experiences in the formation of attachment to residential places. From this critical position, the effects of negative feelings and experiences are highlighted, suggesting that place attachment may involve a dynamic tension between belonging, exclusion, and positive and negative affects (Manzo, 2014).

Finally, regarding the association between the variables studied, significant correlations were found for Chaitén in relation to his current neighborhood above  $r = 0.4$  between place attachment, place identity and sense of

community. While in Constitución the association between these variables was both for the past neighborhood and for the current neighborhood.

Place identity and place attachment in both locations correlate significantly with respect to the previous and current neighborhood above  $r = 0.4$ . These results confirm the extensive evidence of the close relationship between both constructs (Brown & Werner, 1985; Hernández et al., 2007; Stedman, 2002).

### **Conclusions**

We have confirmed how the transformations produced by disasters and the subsequent reconstruction and/or displacement processes alter people's physical environments, modifying the construction of symbolism and spatial significance, which affects the dynamics of coexistence and association of people. communities. As Días and Prewitt Dayal (2008) state, the feeling of loss of place is the most catastrophic impact of a disaster, which is why post-disaster reconstruction processes must consider not only the replacement of physical structures but also, As Rosales and Salazar (2010) propose, face social and psychological aspects. Therefore, the inclusion of knowledge of the socio-spatial ties of people who have been displaced as a result of post-disaster initiatives,

The results of this work represent a first step in the exploration of place attachment and identity, the sense of community and civic participation in people affected by socio-natural disasters. For future research, it would be interesting to explore other variables that have shown their effect in several studies, such as the housing tenure regime (Riger & Lavrakas, 1981) and the number of previous homes (Cuba & Hummon, 1993), which I intend to present. in future advances of this research.

Another limitation of the results is the simplification of the proposed conceptual relationships due to the methodological approach adopted. Some alternatives to address this limitation could be replication with other samples and complementarity with longitudinal studies. Another aspect foreseen in this research, as noted in the introduction, is to triangulate the methodological approach with a qualitative analysis to explore from experience, the participation in the neighborhood of the participants and the factors linked to place attachment and identity, in addition to the sense of community, in the context of post-disaster reconstruction.

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#### Footer

<sup>1</sup> There are no official statistics regarding how many displaced people from Chaitén are in Puerto Montt. The Municipality of the place was investigated, but they do not have information about it either, so the data arises from the investigation on the ground.

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