



Transmission of the Parent-adolescent Attachment Bond to the Next Generation: A Case-control Study

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Authors' contributions

This work was carried out in collaboration between all authors. Authors MG and MS designed the study, wrote the protocol, and wrote the first draft of the manuscript. Authors AS and LS performed the statistical analysis. Authors LS, MC and IC collected data, created and managed database, managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background and Goals: Many studies have examined how types of parent-child attachment bond are transmitted from one generation to the next, and how this may be associated with the occurrence of psychological disorders and dysfunctional relationships. In this study, we proposed to investigate the relationship, if any, between dysfunctional attachment bond and psychopathology, and to see whether dysfunctional parent-adolescent attachment bonds are handed down to the next generation.

Methods: The clinical group (cases) consisted of 44 adolescents with psychological disorders (21 males and 23 females) with a mean age of 15.3 years \pm SD 1.549, attending our Service for Children, Adolescents and Families, ULSS 16 (Padua); the control group consisted of 44 adolescents, matched pairwise for age and gender, recruited at secondary schools in Vicenza. We

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used the Parental Bonding Instrument (PBI) to measure the adolescents' perception of how their parents behaved towards them.

Results: A statistically significant difference was found between the two groups of adolescents regarding their attachment bond with their fathers and mothers: the clinical group had a higher percentage of dysfunctional attachment bonds with both their fathers (37% vs 10%) and their mothers (45% vs 13%). As for the transmission of dysfunctional attachment bonds to the next generation, we found that adolescents with dysfunctional relationships with their mothers had mothers whose attachment bond with their own parents had been dysfunctional too. The opposite was true in the control group, who showed 'positive' changes in relation to both the grandparent-father-adolescent triad, and the grandparent-mother-adolescent triad.

Keywords: Parental bond; adolescence; attachment; psychopathology; transgenerational.

1. BACKGROUND

Many studies have examined the transmission of the attachment bond from parents to their children and its possible association with the onset of psychopathological disorders [1,2] and dysfunctional relationships [3]. Most of such research refers to childhood, however, while there is less literature available on the attachment bond in adolescence.

Intrinsic in the concept of *attachment* [4,5], there is a tendency for patterns of attachment to be reiterated by subsequent generations. In other words, parenting styles seem to have a high likelihood of recurring in the child. Parents' defensive processes adopted as a result of negative experiences are essentially responsible for their adoption of dysfunctional attachment patterns [6]. Children whose parents provide them with a secure base develop the ability to recognize themselves and others as thinking individuals earlier than their "insecure" peers [2,7,8].

In last years, the psycho-relational evidence has been studied by a neurobiological prospective too. In fact, variation in gene regulation has emerged as a mechanism through which the interplay between DNA and environments leads to the biological encoding of these experiences [9]. Then it is now clear that gene-by-environment interactions mediate differential susceptibility to the environment and might explain why some parents and/ or children are more sensitive or resilient or vulnerable compared with others to life events such as stress, relationships, feeling experiences, ect. [10]. For example from recent studies it has emerged that antenatal maternal anxiety predicts offspring neurodevelopment and psychopathology [11], and that social experiences can have a persistent effect on

biological processes leading to phenotypic diversity [12].

The *Parental Bonding Instrument* [13] defines the relationship between child / adolescent and caregiver according to two parameters: care and overprotection. In particular, the care variable defines a continuum ranging from affection, emotional warmth and empathy to the opposite, emotional coldness, indifference and rejection; overprotectiveness has to do with control, intrusion and excessive contact as opposed to encouraging independence. This tool has been used in adult patients with psychoses, eating disorders, and depression, and it has demonstrated the relationship between dysfunctional parental bonding and psychopathology [14-18]. Only a few studies have used the tool with children and adolescents, confirming that psychiatric patients have a higher level of dysfunctional bonding characterized by "low care and high overprotection" [15-16,19]. To our knowledge, no studies have focused on elucidating how dysfunctional parent-child attachment bonds are transmitted from one generation to the next.

1.1 Research

This was a case-control study that aimed to investigate whether a relationship exists between dysfunctional attachment bonds and adolescent psychopathologies, and to test whether such dysfunctional relationships between parents and adolescents are handed down from one generation to the next.

1.2 Sample

The clinical group (cases) consisted of 44 adolescents, 21 males and 23 females, with a mean age of 15.3 years (SD 1.549). Half of this sample had a diagnosis of emotional and

affective disorders (ICD 10, F30-F48), and the other half had been diagnosed with behavioral disorders (ICD 10, F90-F94). They were recruited at the Infancy Adolescence Family Unit, ULSS 16 in Padua, Italy. The control group consisted of 44 secondary school students matched pairwise for age (mean age= 14.75 years; SD 1.82) and gender (20 males, 24 females). Both cases and controls and their parents, after being explained about the research and its aims, signed an informed consent.

2. MATERIALS AND METHODS

We used the Parental Bonding Instrument (PBI) [13] to measure the adolescents' perception of how their parents behaved towards them. The PBI measures two different scales: CARE (items 1, 2, 4, 5, 6, 11, 12, 14, 16, 17, 18, 24) and OVERPROTECTION (items 3, 7, 8, 9, 10, 13, 15, 19, 20, 21, 22, 23, 25). The internal consistency was computed separately for the two subscales and the Cronbach's alpha for both scales were good (Care= 0.83; Overprotection= 0.87). The combination of the scores defines four types of mother-child and father-child attachment bond:

- 1) Absent or weak bonding (low care - low overprotection);
- 2) Affectionless control (low care - high protection);
- 3) Optimal bond (high care - low overprotection);
- 4) Affectionate constraint (high care - high protection).

First, we analyzed the differences between the clinical and control groups in terms of their attachment bond with their parents to answer the question, "*Which attachment bond prevails in each group?*".

Then we analyzed whether their attachment bond reflected that of their parents with their own parents (the adolescents' grandparents) to answer the question, "*Is the attachment bond transmitted from one generation to the next?*".

3. RESULTS

The Statistical Package for the Social Sciences, version 22 (IBM SPSS) was used to analyze our data.

First of all, we tested whether the two groups were statistically comparable using the t-test for independent samples to compare their mean

age, and the chi-square test to compare the gender distribution in the two groups.

The chi-square test was used to compare the results emerging from the PBI between the clinical and control groups (Table 1). A significant difference emerged between the two groups as regards the father-adolescent attachment bond ($\chi^2 = 8.59$ df = 3 $p=0.035$).

A significant difference also emerged between the two groups when we compared the mother-adolescent attachment bond ($\chi^2 = 12.81$ df = 3 $p=0.005$).

The four above types of attachment bond were subsequently divided into two groups, i.e. optimal bond (type 3) and dysfunctional bonds (types 1, 2 and 4) to test the hypothesis that types of attachment bond are transmitted from one generation to the next.

Crosstabs with McNemar specific statistics were performed separately for cases and controls to see if any dysfunctional attachment bonds between the parents and their own parents (the adolescents' grandparents) were handed down by the parents to the adolescents, or whether there were any changes - from a dysfunctional to an optimal, or from an optimal to a dysfunctional attachment bond - in this second generation. Our results revealed statistically significant differences in the clinical group.

When the attachment bond between the adolescents in our clinical sample and their fathers was compared with the relationship these fathers had with their own parents, we found a significant difference vis-à-vis the fathers' earlier attachment bond with their own fathers ($\chi^2= 6.667$; $p = .007$) and mothers ($\chi^2= 6.857$; $p = .039$). This entailed a change from a previous dysfunctional relationship with their father (in 36.1% of cases) and/or mother (in 27.8%) to a subsequent optimal relationship with their own offspring.

When the attachment bond between the adolescents in our sample and their mothers was compared with the relationship their mothers had previously had with their own fathers, we found a significant change ($\chi^2= 4.348$; $p = .002$) from a dysfunctional bond in the former generation to an optimal bond in the latter in 34.2% of cases.

It is noteworthy, however, that despite the above-mentioned statistically significant changes, in

Table 1. Descriptive statistics (1 = absent or weak bonding; 2 = affectionless control; 3 = optimal bond; 4 = affectionate constraint)

		Clinical group				Control group			
		Care		Overprotection		Care		Overprotection	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Adolescent-mother	1	23,59	4,21	10,18	3,17	21,00	5,10	9,85	4,00
	2	22,13	3,23	19,38	3,02	20,00	6,98	17,75	0,96
	3	31,80	1,30	9,80	4,87	31,15	1,60	9,85	3,47
	4	31,60	1,52	16,60	0,89	31,25	1,26	18,50	2,38
Adolescent-father	1	20,46	3,62	9,28	3,17	18,79	3,91	9,86	2,88
	2	17,36	4,85	17	2,63	20,25	5,56	14,25	0,50
	3	28,78	1,99	9	3,5	30,06	2,35	8,88	3,01
	4	29,25	2,22	16	0,82	27,86	1,68	16,71	1,70
Mother-her mother	1	21,78	5,49	11,13	2,85	21,11	5,29	9,21	3,98
	2	18,29	5,62	18,29	1,70	15,57	4,39	20,14	3,02
	3	31,63	1,77	8,25	3,45	31,09	1,76	9,09	2,84
	4					30,00	#DIV/0!	17,00	#DIV/0!
Mother-her father	1	20,35	4,34	9,47	3,26	18,29	3,20	9,12	3,04
	2	15,77	5,51	16,46	2,70	17,69	4,29	18,15	2,61
	3	29,57	2,64	9,71	2,21	30,00	2,00	7,86	3,29
	4	26,00	#DIV/0!	15,00	#DIV/0!	29,00	#DIV/0!	29,00	#DIV/0!
Father-his father	1	19,33	3,61	8,24	3,19	17,42	5,08	9,46	3,24
	2	14,00	9,13	16,50	1,29	15,20	5,07	17,40	1,14
	3	28,43	1,51	9,00	1,29	27,75	0,96	8,50	3,51
	4	26,00	#DIV/0!	26,00	#DIV/0!	29,00	#DIV/0!	29,00	#DIV/0!
Father-his mother	1	21,30	5,15	8,25	3,46	24,00	3,48	9,82	4,64
	2	24,00	#DIV/0!	17,00	#DIV/0!	17,33	6,50	19,33	4,46
	3	30,78	1,09	10,00	3,32	31,00	1,53	9,71	2,69
	4	31,00	#DIV/0!	31,00	#DIV/0!	31,00	#DIV/0!	31,00	#DIV/0!

Table 2. Percentages from crosstabs comparison of the attachment bond between the adolescents' parents and the latter's own parents (the adolescents' grandparents) and the attachment bond between the parents and the adolescents

	PBI father_father PBI adolescent_father	PBI father_mother PBI adolescent_father	PBI mother_father PBI adolescent_mother
Dysfunctional-dysfunctional	52.8%	52.8%	47.4%
Dysfunctional-optimal	36.1%	27.8%	34.2%

approximately half of our sample the attachment bond between parent and child remained dysfunctional in both generations (Table 2).

The control group revealed no statistically significant changes between the generations in terms of the quality of the attachment bond between parents and their offspring.

4. DISCUSSION AND CONCLUSION

A statistically significant difference was found between the cases and the controls regarding the adolescents' attachment bond with their fathers and mothers: compared with controls, the

cases had a higher percentage of dysfunctional attachment bonds both with fathers (37% vs 10%) and with mothers (45% vs 32%) (Figs. 1 and 2). There were substantial differences in the proportions of the four types of attachment bond identified by the PBI. As regards the father-adolescent pair, most of the controls reported having an optimal bond, while most of the clinical group reported affectionless control (considered the worst type of attachment bond). These results confirm other reports in the literature on the association between psychopathologies and dysfunctional attachment bonds [20,22,23,24]. The same picture emerged from the analysis on mother-adolescent attachment bond: 49% of

controls reported an optimal bond, while 45% of the clinical group described an absent or weak bonding. These data confirm our first hypothesis of a prevalence of optimal attachment bonds in the control group as opposed to a prevalence of dysfunctional attachment bonds in the clinical group.

Concerning the second aim of our study, regarding the transmission of types of attachment bond from one generation to the next, our results revealed no statistically significant differences. Fathers showed no sign of any statistically significant transmission from one generation to the next of a given type of attachment bond (be it optimal or dysfunctional) in either the clinical group or the controls. In other words, the type of attachment bond existing between fathers and their own parents does not appear to predict the type of attachment bond they establish with their own offspring.

As for the mothers, the clinical group revealed a statistically significant transmission to our sample of adolescents of a dysfunctional attachment bond experienced between the mothers and their own fathers (the adolescents' grandfathers), the second-generation mother-adolescent bonds being likewise dysfunctional.

Finally, when we looked at the rate of change from a dysfunctional attachment bond in the first generation to an optimal bond in the latter, the control group revealed a statistically significant "positive" change in both the grandparent-father-adolescent triad and the grandparent-mother-adolescent triad.

The present study confirms the prevalence of dysfunctional parental attachment bonds in adolescents with psychopathological issues, stressing the important role of interactive family patterns as risk or protective factors for the onset of psychiatric disorders. The hypothesis of dysfunctional attachment bonds being transmitted from one generation to the next was only confirmed in the "clinical group", while the group of control revealed a positive 'transformation' of the attachment bond from the former to the latter generation. Our findings underscore the association between dysfunctional parental attachment bonding and the onset of psychological disorders in their offspring, and the consequent need to work with parents as well, not only with the children, within the take-over in developmental age.

In conclusion, our clinical and control groups differed in the type of attachment bond they reported experiencing, and the differences support a relationship between the type of parental attachment bond and adolescent psychopathology.

It is important to mention some limitations of this study. First of all, the sample size (N=88) was not small, but not large enough to entitle us to generalize in the light of our findings. Second, the clinical group consisted of patients treated for at least a year at our Service for Children, Adolescents and Families, so their signs of psychopathology may be less apparent. In future research, it would therefore be interesting to replicate our study with patients who have just been taken into care. A further limitation concerns our methods. Self-report measures are generally useful for obtaining objective information from large samples, but they are liable to be influenced by social desirability issues. Research has shown that the concept of adolescent attachment is more complex and structured than emerges from attachment studies relating to early childhood, and its multidimensional nature poses specific problems as regards its assessment. The findings of the PBI used here to assess attachment bond in adolescence must be interpreted with caution because of the tool's modest diagnostic capacity [25]. In fact, there are some aspects of attachment of which the respondent may not be aware, that could be tapped more effectively by means of interviews, such as the Adult Attachment Interview. Aspects relating more to semantic representation and awareness could be investigated by administering different self-report questionnaires. In short, it might be useful to accompany self-report methods with other tools to obtain a more complete picture of the quality of adolescents' attachment bond with their parents [26].

Finally, it might prove useful to conduct a follow-up of this research to see if and how the attachment bond between clinical adolescents and their parents might change as a result of changes in their psychological disorder.

CONSENT

The authors hereby declare that written informed consent was obtained from all parents and patients before their participation in the study (forms from Authors' Institution).

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

None of the authors has not to declare any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work.

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