

TRAINING ON ATTACHMENT STYLES INCREASES SECURE ADULTS' ATTRIBUTIONS OF CONTROL

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The present study examined whether training on attachment styles may change individual self-perceptions. It was argued that secure individuals are more sensitive and less defensive than insecure ones to new information about the self and, thus, are willing to integrate adaptively and deeply process such information, increasing their perception of environmental control, namely their locus of control. Participants completed the Attachment Style Questionnaire (ASQ) as well as Internal, Powerful Others, and Chance Scales (IPC) both before and after attending classes addressing attachment style in related versus unrelated topics. Results revealed that participants who scored high in secure attachment increased their perception of internality and decreased their perception of externality after training on attachment styles, thus displaying a script-relevant information bias. Conversely, insecure individuals tended to maintain their self-perception and evaluation unchanged.

Key words: Attachment styles; Secure-base script; Locus of control; Affect-regulation strategies; Training on attachment-related issues.

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INTRODUCTION

From a social-developmental perspective, developmental psychologists suggest that the kind of attachment style children develop is the most appropriate to guarantee their mothers' care. From another point of view, a secure attachment style is considered the best opportunity to ensure one's own protection. According to the literature, secure attachment is related to positive expectations about others' availability, positive view of the self as competent, loved, and valued; moreover, secure individuals are thought to have learnt that distress and external obstacles can be overcome, and they also learnt about the control they can have over the course and outcomes of any type of event, including negative and stressful ones (Shaver & Mikulincer, 2007). Many factors moderate the relationship between a secure attachment style and favorable growth and adaptation: social and relational competencies, abilities to form relations with unknown adults and to regulate affects and emotions (Mikulincer & Florian, 2001).

Different categorizations of attachment styles have been suggested, above all regarding the classification of insecure attachment. Hazan and Shaver (1987) proposed to classify individuals based on their belonging to one of three profiles describing secure, anxious, and avoidant attachment styles. On the other hand, Bartholomew and Horowitz (1991) presented a classification

that differentiated four styles: secure, preoccupied, avoidant, and fearful. Independently from the various classifications regarding insecure attachment styles, a unique and univocal definition of secure attachment style does exist.

Mikulincer and Shaver argued (Hazan & Shaver, 1987; Hesse, 1999; Mikulincer & Florian, 1995, 1998, 1999, 2000) that secure attachment style is associated not only with an active and effective search for support, but also with the tendency to consider oneself as the main agent in both affective interpersonal experiences and exploration behaviors. The main question is: how does secure attachment link individuals' actions and social acts to the development and reinforcement of an autonomous self (Mikulincer & Shaver, 2005)?

Collins, Guichard, Ford, and Feeney (2004) suggested that, as empirical studies have shown, top-down processes shape individuals' perceptions and cognitive patterns: goals, schemata, and beliefs based on internal working models (IWM) influence the way new information is processed. Previous studies have consistently shown that individuals focus their attention on relevant information to accessible goals and coherent with their attitudes, opinions, and, in particular, beliefs (Bargh, 1984; Roskos-Ewoldsen & Fazio, 1992; Srull & Wyer, 1986). Thus, internal working models play a central role in canalizing cognitive resources in attachment-related contexts. As a result, available information may be biased in the directions of existing goals and beliefs. Waters and Waters (2006), Mikulincer, Shaver, Sapir-Lavid, and Avihou-Kanza (2009) described the accessibility, richness, and automaticity of the secure-base script, and showed the extent to which it guides the processing of attachment-relevant information.

It has been, moreover, largely shown that secure individuals possess a flexible cognitive style and are positively open to integrate new unexpected information about their own image as proposed by others familiar or otherwise (Mikulincer, 1998; Mikulincer & Arad, 1999). Secure individuals are also willing to adaptively process and add new information about the self and its functioning.

To conclude, Hexel (2003) showed that individuals with an internal locus of control have a secure attachment style and score low both in their need for approval and in their worry about relationships. The concept of locus of control was initially proposed by Rotter (1966) in the context of social learning theory; when individuals evaluate the cause of a self-relevant event, they may attribute its source either to the self or to uncontrollable events, such as chance or powerful others. Some early results suggested the existence of a link between secure attachment style and internal locus of control. Chance (1965) found a positive relationship between educational practices favoring autonomy and internality. Davis and Phares (1969) revealed a positive correlation between directivity of parents' education and children's externality. In addition, parents' hyper-protective attitudes were found to result in children's externality (Johnson & Kilmann, 1975). As Crandall and Crandall (1983) argued, perceptions of internal control are a function of parental attitudes and behaviors oriented to support and comprehension, and characterized by absence of punishment. Rotter's (1966) concept of expectation corresponds to an anticipatory behavior: when experiencing affective events, individuals prefer some goals rather than others. Rotter explains behavior in terms of learning and motivation, namely: individuals' expectations vary as a function of confirmation of the same expectations. Any type of threatening event activates the attachment system (AS), which is responsible for restoring a sense of safety. The way in which each person recovers a sense of security is related to his/her own attachment style (secure, anxious, avoidant), which depends on early experiences with caregivers. According to the literature

(Mikulincer & Shaver, 2003; Mikulincer, Shaver, & Pereg, 2003), relevant negative information on our own attachment figures is able to activate the AS. We argued that an intensive training on attachment relevant issues can also be an opportunity to activate participants' AS. Participants' own attachment style, and related script, should bias the new information. Secure individuals should increase their perception of control over their lives' events (internality) and their lack of confidence in luck or powerful others (externality).

Based on Mikulincer's reasoning, our aim was to investigate whether a secure attachment style may contribute to forming an autonomous self: secure individuals are expected to process new information relevant to their attachment style, integrating it into their positive internal working model, and to avoid any type of defensive behavior or attitude, which is typical of insecure individuals. Our hypothesis was that only secure individuals would be sensitive to new information concerning attachment styles; they would be able to integrate this information into their beliefs about the self, accentuating, thereby, the perception of internal control, and positive beliefs about the self and other people.

OVERVIEW

The design of this study included two experimental conditions. Two classes were trained: the first on attachment-related topics (experimental condition); the second on topics related to general nursing practices without any reference to psychological issues (control condition). A pre-test phase was organized assessing attachment styles and locus of control in both classes. This pre-test phase was followed by the 22-hour training course. A post-test identical to the pre-test followed both courses.

Undergraduate nursing students at the University of Verona participated in the 22-hour course (four appointments on a weekly basis). All participants completed, both before and after the course, the same instruments, assessing adult attachment styles and locus of control. Interaction with available and responsive caregivers, during infancy, promotes a core sense of attachment security, and relies on positive beliefs on the self and on others (IWM). When caregivers are not responsive and/or little available, security is not attained and negative mental representations of the self and others are formed. Security is associated with positive expectations related to the interactional context, while insecurity (both in avoidant and anxious persons according to Hazan and Shaver, 1987) raises negative expectations. The social learning theory (Rotter 1954, 1966) states that individuals hold generalized expectancies, which are based on past experiences. Internal locus of control points out that in different life situations it is possible, useful, and preferable to act responsibly on ones' own, that is, that a certain amount of control over life is possible. External locus of control means that important life events are considered as being dependent on other people, luck, or coincidence. Previous research (Hexel, 2003) demonstrated that internally oriented people show less need for approval and less preoccupation with personal relationships. Need for approval and preoccupation for relationships reflect individuals' need for others' acceptance and confirmation. Both feelings indicate insecure attachment and are typically present in individuals who have an external locus of control (Hexel, 2003).

We therefore hypothesized that: 1) secure individuals would be able to select new information and, according to social learning theory, would be able to confirm their internal working

model, based on feelings of security and independence; 2) secure individuals are expected to take advantage of the training, and increase their attributions of internality after training on attachment styles issues. The available information would be biased in the direction of the secure-base script-related beliefs; 3) regarding the measure of adult attachment style, no changes are expected: attachment styles are rather resistant to change and their likelihood of change decreases with age (Ainsworth, 1990).

In contrast, insecure individuals would not be able to integrate the new information. In fact, it does not match their beliefs and expectations, based on their internal working model: insecure individuals would, therefore, not modify their locus of control in the same directions as secure individuals. Their negative IWM would activate several defensive strategies.

Thus, the present study aimed to: 1) consider the correlation between adult attachment styles (secure, anxious, and avoidant) and attributions of locus of control (internality versus chance and powerful others); 2) investigate whether secure individuals are willing to change their attributions of locus of control in the direction of an increased internality, after receiving information concerning their attachment style; 3) confirm the relative resistance to change of adult attachment style.

METHOD

Participants

The sample consisted of 59 nursing students, who voluntarily participated in the study. Twenty-seven participants, 70% women, received a training course concerning attachment styles (age ranging from 24 to 47, $M = 33.13$, $SD = 7.05$); 32 participants, 72% women, received a training course on topics unrelated to psychological issues (age ranging from 23 to 43, $M = 31.58$, $SD = 5.25$). All participants took part in the same three phases of the study: 1) a pre-test, involving the assessment of attachment styles and locus of control; 2) scheduled classes; 3) a post-test, in which the measures of attachment styles and locus of control were applied again: we aimed to test differences after the training course.

Procedure

Pre-test

All participants were given a booklet, containing paper-and-pencil measures of adult attachment style and locus of control. Adult attachment style was assessed using the Attachment Style Questionnaire (ASQ; Feeney, Noller, & Hanrahan, 1994). This instrument, composed of 40 items with 6-point Likert scale, presents acceptable internal consistency, and can also be administered to adults and adolescents not involved in romantic relationships. The Italian validation (Pedrazza & Boccato, 2010) supported, through Confirmatory Factor Analysis, the three-factor structure (secure, anxious, and avoidant) in an Italian non-clinical sample. The subscales need for approval and preoccupation make up the anxious factor. The discomfort in close relationships

and relationship as secondary subscales constitute the avoidant factor. The confidence scale represents the secure factor.

Locus of control was assessed using the internal, powerful others, and chance scales (IPC; Levenson, 1981). Twenty-four items (6-point Likert scale) represent three factors: internal, powerful others, and chance (for the Italian validation of this scale see Nigro & Galli, 1988).

Training on Attachment-Related Issues

In the experimental condition, students were introduced to the study and to recognizing various psychological processes concurring to the formation and maintenance of care relationships. Particular prominence was given to psychological and social benefits linked to secure attachment. Specifically, the needs satisfied by dyadic relationships, attachment styles, and IWMs of the self and others (Bartholomew and Horowitz, 1991) were analyzed, discussed, and trained as follows: 1) attachment style assessment; measures/instruments: recognition of one's style through the description of conscious behaviors and feelings related to dyadic relationships; 2) recognition of attachment style-related needs for both the secure and insecure script; 3) identification and recognition of the attachment style-related beliefs about the self and the generalized other, such beliefs being prototypical of any type of interpersonal behavior; 4) role playing on problem-solving strategies related to both secure and insecure scripts, with particular emphasis on the effectiveness of secure attachment, secure individuals being able to seek and give support in interpersonal interactions in health-care context.

Post-test

One month after the pre-test, participants completed the same questionnaire once more.

RESULTS

Preliminary Analyses

This section is devoted to the internal consistency of the scales.

At the pre-test, reliability was sufficient for all the ASQ subscales: discomfort in close relationships ($\alpha = .74$), confidence ($\alpha = .65$), need for approval ($\alpha = .72$), relationship as secondary ($\alpha = .60$), and preoccupation ($\alpha = .61$). At the post-test, all alphas were sufficient or satisfactory, ranging from .65 to .79. At the pre-test, the correlation between discomfort in close relationships and relationship as secondary was $r = .44$ ($p < .001$); scores relative to the two subscales were, thus, averaged to obtain a single composite score, corresponding to the avoidant attachment style. The correlation between need for approval and preoccupation was $r = .40$ ($p < .002$); scores of the two subscales were, thus, averaged to obtain a single composite

score, corresponding to the anxious attachment style. Confidence (secure attachment style) correlated negatively with both anxious ($r = -.33, p < .01$) and avoidant styles ($r = -.54, p < .001$).

Concerning the IPC, the three subscales showed sufficient or satisfactory reliability, both at the pre-test and post-test: internal (pre-test: $\alpha = .78$; post-test: $\alpha = .74$), powerful others (pre-test: $\alpha = .66$; post-test: $\alpha = .63$), and chance (pre-test: $\alpha = .82$; post-test: $\alpha = .90$).

In order to investigate the moderation effect of the secure attachment, using a median split for the Confidence scale at the pre-test, the experimental and control groups were divided into secure ($Mc = 4.92, SD = 0.26; Me = 5.13, SD = 0.33$) and insecure individuals ($Mc = 4.03, SD = 0.42; Me = 4.32, SD = 0.38$).

Treatment Effects

In this section, the effects of training on attachment styles were considered by comparing data from pre- and post-test depending on the condition (experimental vs. control). Data relative to the ASQ were submitted to a 3 (attachment style: secure vs. avoidant vs. anxious) \times 2 (time: pre vs. post) \times 2 (condition: experimental vs. control) mixed-model ANOVA, with the first two factors varying within participants. The three-way interaction was not significant, $F(2, 54) = 1.49, p < .24$. There was no difference in scores on the attachment style from the pre- and the post-test depending on condition. The complete pattern of means is reported in Table 1. For the experimental group, that received a training on attachment styles, scores on security, anxiety, and avoidance did not change significantly depending on time (all $t_s < 1$). For the control group, that received a training on topics unrelated to attachment, scores relative to security ($t < 1$) and avoidance, $t(26) = 1.54, p < .13$, were unaffected by time; unexpectedly, scores on anxiety increased at the post-test ($M = 2.90, SD = 0.52$) compared to the pre-test ($M = 2.56, SD = 0.56$), $t(26) = 3.67, p < .001$. This last result might depend on the specific content of the training that control participants received on nursing practices.

TABLE 1
Scores relative to the three attachment styles at pre- and post-test, depending on condition

Attachment style	Time			
	Pre-test		Post-test	
Control group	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure	4.75	0.54	4.78	0.51
Anxious	2.56	0.56	2.90	0.52
Avoidant	2.37	0.53	2.26	0.54
Experimental group	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure	4.47	0.57	4.41	0.58
Anxious	3.05	0.66	2.93	0.64
Avoidant	2.71	0.53	2.73	0.55

Data relative to the IPC were submitted to a 3 (locus of control: internal vs. powerful others vs. chance) \times 2 (time: pre vs. post) \times 2 (condition: experimental vs. control) \times 2 (security: high vs. low) mixed-model ANOVA, with the first two factors varying within participants. The three-way interaction turned out to be significant, $F(2, 54) = 4.81, p < .01$. However, this effect was marginally qualified by the security factor, $F(2, 54) = 2.85, p < .06$. In order to understand the meaning of the four-way interaction, two additional ANOVAs were performed, one for each condition.

For the experimental group, that received specific training on attachment issues, data were submitted to a 3 (locus of control: internal vs. powerful others vs. chance) \times 2 (time: pre vs. post) \times 2 (security: high vs. low) mixed-model ANOVA. The three-way interaction was significant, $F(2, 24) = 5.55, p < .007$. Post-hoc analyses revealed that secure adult participants: 1) at the internal scale, scored higher at the post-test ($M = 4.69, SD = 0.71$) than at the pre-test ($M = 4.57, SD = 0.70$), even if the difference was nonsignificant, $t(13) = 1.60, p < .13$; 2) at the powerful others scale, they scored significantly lower at the post-test ($M = 2.50, SD = 0.76$) than at the pre-test ($M = 2.96, SD = 0.96$), $t(13) = 3.66, p < .003$; and 3) at the chance scale, they scored lower at the post-test ($M = 2.09, SD = 0.95$) than at the pre-test ($M = 2.83, SD = 0.83$), $t(13) = 4.10, p < .001$. The complete pattern of means is reported in Table 2. Conversely, insecure adult participants showed no significant change as the effect of training (all $ts < 1$).

TABLE 2
Locus of control at pre- and post-test, depending on level of security: Experimental group

Locus of control	Time			
	Pre-test		Post-test	
Secure adults	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Internal	4.57a	0.70	4.69a	0.70
Powerful others	2.96a	0.96	2.50b	0.76
Chance	2.83a	0.83	2.09b	0.95
Insecure adults	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Internal	4.51a	0.59	4.43a	0.63
Powerful others	2.73a	0.63	2.78a	0.61
Chance	2.57a	0.66	2.57a	0.71

Note. Different letters, in the same row, indicate that the two means are significantly different, $p < .003$.

For the control group neither the three-way, $F(2, 29) = 2.25, p < .12$, nor the four-way interaction, $F < 1$, came out to be significant. Overall, post-hoc analyses revealed no difference for scores at the internal and at the powerful others scales ($t < 1$) depending on time; conversely, for the chance scale, scores were higher at the post-test ($M = 3.23, SD = 0.83$) than at the pre-test ($M = 3.00, SD = 0.74$), $t(31) = 2.45, p = .02$. We have no explanation for the last result: future re-

search should consider the effects of training in nursing practices on attachment styles and locus of control.

Overall, the analyses of this section revealed that only participants who scored high in the security/confidence scale, after training on attachment styles, changed their locus of control by (marginally) increasing internal and decreasing external beliefs of control.

Correlation Analyses

In this section, we examine the correlations between the ASQ and IPC scales. Considering the whole sample at the pre-test, the secure style (confidence scale) did not show any significant correlation with the three IPC scales. The avoidant style correlated positively with powerful others ($r = .24, p < .07$). The anxious factor correlated negatively with internal control ($r = -.41, p = .001$), and positively with chance ($r = .42, p = .001$) and powerful others ($r = .40, p = .002$).

It is interesting to note that at the post-test, only for the experimental group, we found significant correlations between the secure attachment style and the internal ($r = .56, p = .002$), chance ($r = -.36, p < .07$), and powerful others ($r = -.37, p < .06$) scales of the IPC. These correlations remained nonsignificant for the control group.

DISCUSSION

As Rotter (1966) argued, behavioral models are learnt and shaped through social experiences, are linked with fundamental needs that require other individuals' mediation in order to be satisfied. The attachment behavioral system is fundamental for the individual's life. Attachment-related representations of the self and others influence expectations: they shape all the aspects of human information processing, acting as filters through which especially social experiences are processed (Bowlby, 1982).

Hexel (2003) showed that individuals with internal locus of control are more confident, they are low in need of approval and less worried about intimate relationships. Collins et al. (2004) showed that secure individuals have an open cognitive style, they are likely to integrate new information on the self and others within their social representations and expectations (Mikulincer, 1998; Mikulincer & Arad, 1999). In addition, there is evidence that priming the secure scheme attenuates negative reactions to the outgroup (Mikulincer & Shaver, 2003).

Gratifying and generally positive experiences in attachment personal history are thought to be mentally summarized and recorded in what Bowlby (1973) called internal working models (IWM) of self and others. IWMs are thought to be part of a person's declarative knowledge of the self as special, valued, and able to successfully influence both the social and physical environment (Mikulincer & Shaver, 2004; Shaver & Mikulincer, 2007). Recent theoretical analyses have proposed that these IWMs also include procedural knowledge, which is organized around a so-called relational secure-base script (Bretherton, 1987, 1990; Mikulincer & Shaver, 2007, Waters, Rodrigues, & Ridgeway, 1998; Waters & Waters, 2006).

In the present study, participants of the experimental group were involved in a situation of attachment system activation: in fact, they had to understand and work out information on attachment-related processes. Mikulincer and Shaver (2003) showed that priming attachment-

related issues activates defensive strategies in insecure individuals. After activation, secure individuals recover a sense of security relying on their confidence in themselves and the possibility to find support.

For one month, participants attended training classes addressing topics related to the modalities of development of the primary relations, and differences in attachment styles and internal working models. It has been found that secure individuals are more permeable and prone to integrate new information concerning the self and others than insecure individuals. Indeed, after training, secure adults' scores on internality increased, while scores on externality (both chance and powerful others) decreased. In sharp contrast, insecure adults showed no change. With respect to attachment-relevant information processing, insecure individuals probably rely on defensive strategies in order to avoid negative emotions associated with self-perception (Bowlby, 1982; Cassidy & Shaver, 1999). As a consequence of training, secure individuals change their self-perception in the direction of their own IWM: the secure-base script implies self-confidence and little or no confidence in luck or powerful others.

Limitations of this study include, on one hand, the small sample size and, on the other hand, some results: secure adults increased scores on internality, but this variation was nonsignificant; however, their scores on externality decreased significantly in the sense of their own beliefs on the self.

Future research should examine differences between attachment styles in processing self-relevant information, also considering whether the emerged changes are stable over time. Moreover, this study should be replicated, considering wider samples of participants and other occupational categories.

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