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Abstract

The aim of the study was to compare adoptees and nonadoptees regarding their romantic relationship experiences and model the factors that predict these experiences (psychological characteristics and characteristics of their adoption pathway). Attachment, resilience, mental health, dyadic adjustment and commitment were assessed in 220 adopted adults matched with 220 nonadoptees. The groups did not differ on the experience of romantic love. Psychological characteristics were predictive of romantic experience. By contrast, romantic experience was not predicted by most of our adoption pathway-related characteristics. Finally, the effect of attachment security on dyadic adjustment was moderated by the group (adoptees vs nonadoptees).

Keywords*:* adoption, romantic relationship, attachment, resilience, adult

Introduction

Approximatively 80 000 children have been adopted in France between 1979 and 2007 (Selman, 2009). Thus, France represents one of the first host countries of adopted children in the world. However, very little research has been done on individuals who have been adopted in France. Besides, in the international literature, most of the studies that have been conducted on adoptees have mainly examined them during their childhood. According to Brodzinsky, Schechter and Henig (1993), adoption is a *lifelong process*, which suggests that its consequences remain in adoptees throughout their lives. The few studies that have been conducted on adopted adults have focused mainly on vulnerability. Some studies have shown, for instance, that adult adoptees have a lower socio-economic status, a higher suicide rate, exhibit more addictive behaviors and commit more murders than the general population (Hjern, Lindblad, & Vinnerljung, 2002; Lindblad, Hjern, & Vinnerljung, 2003). They have also been found to experience poorer mental health (Askeland, Hysing, Aarø, Tell, & Sivertsen, 2015; Brown, Waters, & Shelton, 2019; Sonuga-Barke et al, 2017; Westermeyer, Yoon, & Kuskowski, 2015). However, vulnerability is not systematically observed among adoptees and may in any case change in later life. This is where the notion of resilience[1] comes in. Indeed, Palacios et al (2019) show that adoption would be the better solution for abandoned children in the long run, as it allows the greatest stability. Thus, adoptees' life satisfaction would be, on average, as good as nonadoptees', depending on their feelings regarding relinquishment and adoption (Ter Meulen, Smeets, & Juffer, 2019). Regarding attachment however, some authors show that, even as adults, adoptees present a more insecure attachment than the general population (Borders et al., 2000; Feeney, Passmore, &

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[1] Resilience can be defined as the ability to maintain normal psychological and physiological functioning despite exposure to stress and adversity (Elbau, Cruceanu, & Binder, 2019).

Peterson, 2007; Howe, 2001; Irhammar & Bengtsson, 2004; Passmore, Feeney & Foulstone, 2007).

Although adult adoptees are, on average, less adjusted than nonadoptees, there are considerable differences between adoptees in their adjustment, accounted for by a range of moderating factors related to their adoption pathway (Melero & Sánchez-Sandoval, 2017). In this study, the *pre-adoption pathway* refers to the child's life before being removed from the early environment, and includes the biological family, institutions, and other types of placements. The *post-adoption pathway* refers to the family environment of the child after adoption. Regarding pre-adoption factors, the abuses still appear to generate a high rate of cortisol among adopted adults (Van der Vegt, Van der Ende, Kirschbaum, Verhulst, & Tiemeier, 2009). The time spent in institutions and the age at adoption also have an effect on adoptees' attachment and adjustment during adulthood (Sonuga-Barke et al., 2017). Regarding post-adoption factors, results suggest that sensitive and open communications with adoptive parents about adoption are still important for adoptees' adjustment as adults (Farr, Grant-Marsney, & Grotevant, 2014; Levy-Shiff, 2001; Passmore, Feeney, & Foulstone 2007). Moreover, adoptive parents' parenting style (Passmore, Feeney, Peterson, & Shimmaki, 2006), the quality of the adoptive parent-adoptive child relationship (Ferrari, Ranieri, Barni, & Rosnati, 2015; Grotevant, Rueter, Von Korff, & Gonzalez, 2011) and maternal sensitivity (Schoenmaker et al., 2015) would also determine adult adoptees' adjustment. Finally, a recent study conducted by Baden et al. (2019) reveals that the age at which the adoptee discovers his/her adoptee status is also decisive. Specifically, the later participants discover their adoption, the more distress they display as adults, and the lower their satisfaction with their lives.

As with nonadoptees, romantic relationships are a major issue in adopted adults' lives. Romantic relationships are an important part of psychosocial development in adolescence and

adulthood (Collins, Welsh, & Furman, 2009). Indeed, the partner becomes an important source of support, sometimes even greater than parental relationships (Helsen, Vollebergh, & Meeus, 2000). Moreover, the link between romantic relationships and mental health has already been highlighted. Thus, married adults who are happy in their marriage present a better physical and mental health than their unmarried peers (Chapman & Guven, 2016). According to Braithwaite and Holt-Lunstad (2017), mental health and romantic relationships would be interdependent. Then, attachment would also be an important determining factor of the romantic experience. Indeed, the link between attachment and marital satisfaction and marital adjustment has already been observed in the general population (Muraru & Turluic, 2012). Some studies have also shown that adults' attachment in their romantic relationships are correlated to their early experiences of attachment as children (Chisholm, Quinlivan, Pe:tersen, & Coall, 2005; Roisman, Collins, Sroufe, & Egeland, 2005). Adults who are vulnerable in terms of mental health and/or attachment could thus encounter difficulties in the context of their romantic relationships. Based on the findings of previous literature, we know that adoptees are on average less adjusted and present a more insecure attachment than nonadoptees. This fragility could have consequences for their development as adults, especially for their romantic relationships.

In addition, quality features of romantic relationships are also important. Indeed, many studies have shown that high-quality relationships are positively associated to greater well-being as well as mental and physical health in adulthood (Guner, Kulikova, & Llull, 2018). In the present study, two specific variables related to the quality of romantic relationships came to our attention: dyadic adjustment and commitment. Indeed, these two variables are frequently measured in studies on romantic relationships, especially among adoptees as shown in the meta-analysis by Deluca Bishop, Claxton and van Dulmen (2019). According to Spanier (1976, p17), *dyadic adjustment* can be defined as "a process, the outcome of which is determined by

the degree of: (1) troublesome dyadic differences; (2) interpersonal tensions and personal anxiety; (3) dyadic satisfaction; (4) dyadic cohesion; and (5) consensus on matters of importance to dyadic functioning". This is an important variable as dyadic adjustment is increasingly measured to determine the impact of the relational environment on mental health (Antoine, Christophe, & Nandrino, 2008). Adopted adults are already vulnerable regarding mental health. Dyadic adjustment could therefore be an important risk or protective factor for this population. Then, according to Rusbult's (1980, 1983) Investment Model, commitment is defined as the "intent to persist in a relationship, including long-term orientation toward the involvement as well as feelings of psychological attachment" (Rusbult, Martz et Agnew, 1998, p. 359). This model was derived from the Interdependence Theory (Kelley & Thibaut, 1978). Commitment is a crucial factor in romantic relationships, mostly because it is supposed to predict the relationship persistence (Rusbult, Martz, & Agnew, 1998). Insecure attachment (anxiety and avoidance) is an important predictor of commitment and persistence of the relationship (Etcheverry, Le, Wu, & Wei, 2013). Commitment is therefore an important variable to take into account for adopted adults who are on average more insecure than the general population.

There has been a dearth of quantitative studies of relational outcomes among adult adoptees, even though this aspect has been extensively explored in other populations exposed to early disruption in their lives, such as adults whose parents divorced when they were children. Feigelman (1997) was the first to report that adoptees have lower levels of marital happiness. In line with this result, Tieman, van der Ende, and Verhulst (2006)'s longitudinal study conducted among young adults found that adoptees are half as likely as nonadoptees to forge intimate relationships, live with a romantic partner, and be married. To underscore these quantitative data, Verzuli (2000) conducted interviews with adopted adults. The results show that adoptees experience an intense fear of being abandoned, identity problems, a

feeling of inner emptiness, difficulty trusting people, not feeling loved or being worthy of love, a visceral fear of being separated, and a need to exert control over their emotional lives. The small sample size ($N = 5$) meant that the results of this research could not be generalized. However, most of the themes identified by Verzuli were also found in a recent systematic literature review on this topic (Field & Pond, 2018). On the other hand, Feeney, Passmore and Peterson (2007) conducted a study among 144 adopted adults to examine the impact of adoptive status, family experiences, and attachment on satisfaction, commitment, trust, and degree of risk associated with intimacy. Results revealed that there were no differences between adoptees and nonadoptees in marital satisfaction and that insecurity was no higher among adoptees than among nonadoptees who reported having had negative relationships with their parents. These results are in line with a recent meta-analysis which has shown that adoptees were similar to nonadoptees for most of the variables related to romantic relationships (Deluca Bishop, Claxton, & van Dulmen, 2019). Feeney's et al (2007) results also show that recent relationship difficulties were predictive of insecurity, but solely for adoptees. The authors concluded that attachment is more predictive of the experience of relationships in adulthood than adoptive status and mediates the latter's effects. Finally, Winward (2005) similarly found that adoption per se had little effect on satisfaction or violence in relationships, with the neglect and abuse experienced prior to adoption having a far greater impact.

Thus, although some studies have focused on adoptees' romantic experience, few of them have examined the determinants of this experience. Some psychological variables such as attachment have proven to be particularly predictive of romantic experience, but it is ignored whether it is specific to adoptees or not. Then, variables related to the adoption pathway are almost never included in the variables analyzed. However, if the adoption pathway continues to have an effect on the adjustment and attachment of adoptees who have

reached adulthood, it could therefore also influence their experience of romantic relationships as adults. Moreover, adoptees' adoption pathway refers to the way in which relationships to the first attachment figures (with the biological and adoptive families) were organized around the adoptee as a child. It therefore seems relevant to be interested in the consequences of this pathway for adoptees' ability to forge relationships as adults. This would provide a better understanding of the protective and vulnerability factors linked to the adoption pathway that influence adopted adults' ability to maintain harmonious relationships. Finally, to our knowledge, no study has been yet conducted on a population of French adopted adults. However, France is very different from the United States of America (USA) for instance, especially regarding racial awareness and racial justice. In France, ethnical statistics are not allowed. This implies that transracial adoptees evolve in a different environment than in the USA for instance, where racial awareness is very high. Even in the USA, some studies have shown that transracial adoptees consider that their differences are not sufficiently taken into account in their adoptive families and that they have not been sufficiently prepared for discrimination or racism (Banks, 2020 ; Zhou, Kim, Lee, & Lee, 2020). The French context could then accentuate this effect, or, on the contrary, decrease it, especially thanks to the post-adoption support that is offered to adopted children in France. These cultural differences make the study of French adoptees relevant.

The Current Study

Objective 1. Compare adoptees with nonadoptees on dyadic adjustment and commitment.

We hypothesize that adoptees' psychological vulnerability will have an impact on their romantic relationships: we therefore hypothesize that nonadoptees will present better scores than adoptees for dyadic adjustment and commitment. Previous studies have shown

that adoptees were less satisfied in their relationships, less likely to get married or to forge intimate relationships. We hypothesize that these results could be linked to less commitment and adjustment in their romantic relationships. The objective is also to determine whether similar results as those found in previous studies regarding adoptees' romantic relationships will be found for French adoptees that had not been studied before.

Objective 2. Investigate the links between participants' psychological characteristics and certain characteristics of their adoption pathway on the one hand (age at adoption, type of adoption, time spent in institution, presence of biological or adoptive siblings, status of the adoptive parents' couple and links with the biological family), and their experience of romantic relationships (dyadic adjustment and commitment) on the other hand.

Regarding adoptees' relational outcomes, some of the previous studies suggest that being adopted contributes to specific characteristics in romantic relationships. However, adoption status may not be the most relevant determinant. For instance, attachment would be especially predictive of these romantic experiences. With this work, we want to go a step further by studying more psychological predictors and by comparing the predictive power of these variables for adoptees and for nonadoptees. Furthermore, most of the authors insist on the relevance of including preadoption and postadoption variables in future studies. Regarding the existing literature, we hypothesize that both adoptees' psychological characteristics (attachment, mental health and resilience) and characteristics of their adoption pathways could be associated with their romantic experiences. Finally, according to the literature, we hypothesize that attachment will be more predictive of the romantic experience for adoptees than for nonadoptees (we hypothesize an interaction effect).

Method

Participants

We recruited two groups of participants: adoptees ($n = 220$, mean age = 35.41; $SD = 10.58$) and nonadoptees ($n = 220$, mean age = 35.12; $SD = 10.37$). Each group was constituted from 169 women and 51 men. This difference might be due to the fact that men are less active and spend less time than women on social networks (Alzahrani, 2016).

In order to create two homogeneous groups, adoptees were matched one to one with nonadoptees. This method is a way of ensuring that differences between the two groups are not determined by samples' heterogeneity. Specifically, participants were matched one to one on the following criteria: *sex* (each adoptee was matched with a nonadoptee of the same sex), *age* (participants were matched as closely as possible, within 2 years)*, marital status* (cohabitee, spouse, single, civil partner, widow(er), or divorcee)*, education level*, *employment status* (student, unemployed, employee, farmer, senior manager, business owner, retiree; participants were matched as closely as possible, even if the distribution significantly differed between the two groups, see Table 1).

When no satisfactory match could be found (above criteria not met), the adoptee was removed from the dataset. The final groups therefore comprised 220 adoptees and 220 nonadoptees. By recruiting a large sample and ensuring that participants were carefully matched, we were able to avoid the three flaws that are frequently encountered in adoption studies. These flaws, identified by Hodges, Steele, Hillman, Handerson, and Kaniuk (2005), are too small a sample, measures restricted to vulnerability, and samples that cannot be compared owing to differences in the characteristics of the adopted and nonadopted participants (little or no matching of the two experimental groups). Table 1 summarizes the

participants' sociodemographic characteristics[2] and Table 2 the adoptees' adoption pathway's characteristics.

(Table 1 near here)

(Table 2 near here)

Procedure

This study was conducted in France. Adopted adults were contacted in several ways. Most of them were members of adoption charities such as La Voix des Adoptés, Enfance Famille et Adoption 13 (EFA 13), Pétales France, and Racines Coréennes. These participants were contacted via social media groups. They received the link to access the online survey on these groups. A total of 250 adopted persons completed an online form containing all the questionnaires. They needed approximatively 30 minutes to complete the form (129 items).

Nonadopted adults were contacted via university social media groups and collaborative platforms. There was a single inclusion criterion for all participants: being at least 18 years old. For experimental reasons, adoptees were told that they would be taking part in a survey on adoptees' romantic relationships, but not that their results would be compared with those of nonadoptees. Nonadoptees were told that they would be taking part in a survey on romantic relationships and resilience. The objective of this procedure was to avoid the possible biases that may emerge when two groups know that they are compared with each other. The online form completed by the nonadoptees was exactly the same as the one given to the adoptees, except for certain questions that specifically concerned the formers. A total of 674 French nonadoptees completed the form.

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[2] Participants' ethnicity wasn't provided as it is forbidden under to the French law to ask participants about their ethnicity or race (law "Informatic and Liberties", 1978, article 63; law on Immigration, 2007, Penal Code article 226-19.)

We decided to make the form available online, in order to recruit as many participants as possible. Participants gave their informed consent by clicking on the "Next" button. They were then informed that they could withdraw from the study at any time, assured that the data would be stored anonymously and that they would not be identified via the paper. Participants received no financial compensation for their participation. All procedures were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments.

Measures

Romantic Relationships.

First, we measured *dyadic adjustment* with the French-language version of the Dyadic Adjustment Scale (DAS-16), a self-report questionnaire where items are rated on a 6-point Likert-like scale ranging from 1 (*Never*) to 6 (*Always*). Items are statements such as "We laugh together". This scale was first translated into French by Baillargeon, Dubois, and Marineau (1986). The 2008 version (Antoine, Christophe, & Nandrino, 2008) has satisfactory psychometric qualities (Cronbach's alpha = .89). We also obtained satisfactory internal consistency in our sample (α = .93).

We then measured *commitment* with the Investment Model Scale (IMS) (Rusbult, Martz, & Agnew, 1998), where items are rated on a Likert-like scale ranging from 1 (*Strongly disagree*) to 4 or 8 (*Strongly agree*). Items are statements such as "My relationship is close to ideal". This self-report questionnaire was based on Rusbult's (1980, 1983) investment model. Working on the assumption that commitment arises from increasing dependence, the authors used this questionnaire to highlight three bases of dependence: investment size (α = .83 in the English language version), level of satisfaction, (α = .94 in the English language version), and quality of alternatives (α = .88 in the English language version). The French language version was produced in Canada, as part of a doctoral

dissertation (Giguère, Fortin, & Sabourin, 2006). Its convergent and discriminant validity was checked by examining correlations with the model's variables. We also obtained satisfactory internal consistency in our sample ($\alpha = .93$ for the total score).

Single individuals did not have to fill in the dyadic adjustment and commitment scales. However, they had to answer the other questions and complete the other scales, to enable the comparison between adoptees who were part of a couple and single adoptees. Therefore, 145 participants responded to these two scales in each group.

Psychological Characteristics.

We measured *attachment* with the Relationships Scale Questionnaire (RSQ) (Bartholomew & Horowitz, 1991), translated into French and validated by Guédeney, Fermanian, and Bifulco (2010). This scale was chosen because it is one of the most used in French studies to measure attachment. In this scale, participants have to response while thinking about their close relationships. The RSQ is a self-report questionnaire featuring 30 items rated on a Likert-like scale ranging from 1 (*Not at all*) to 5 (*Very*). Items are statements such as "It is quite easy for me to be close to people". Two dimensions are given by the RSQ: security and detachment. We obtained satisfactory internal consistency in our sample ($\alpha = .86$ for attachment security and $\alpha = .69$ for attachment detachment). Test-retest reliability has also been validated (intraclass correlation coefficient $> .80$).

Because mental health and romantic relationships are interdependent (Braithwaite & Holt-Lunstad, 2017) we measured *mental health* with the French-language version (Pariente, Challita, Mesbah, & Guelfi, 1991) of the 12-item General Health Questionnaire (GHQ-12; Goldberg & Hillier, 1979), a self-report questionnaire probing any psychopathological disorders experienced over the previous weeks. Items are questions such as "Did you feel able to take decisions?", where the respondent can answer on a Likert-like scale ranging from

"better than usual" to "much less than usual". The GHQ-12 has good reliability (Pevalin, 2000) and good internal consistency (α = .82 for the French-language version, α = 0.87 in our sample);

Resilience level of each group was measured with Wagnild and Young (1993)'s resilience scale, which is the one recommended for research of this kind (Ahern, Kiehl, Sole, & Byers, 2006; Windle, Bennett, & Noyes, 2011). This scale has been used with a wide variety of populations and conceptualizes resilience as a personality trait that favors adaptation. Items are statements such as "My life has a meaning", rated on a Likert-like scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). The original version has good internal consistency (α = .84-.94). We also obtained a good internal consistency in our sample (α = .92). This resilience scale has already been translated into 36 languages, including French (Jourdan-Ionescu, Ionescu, Tourigny, Hamelin, & Wagnild, 2015);

Pre and post Adoptive Characteristics: Adoption Pathway.

Adoptees had to provide a certain amount of information about their life before and after adoption. This information is as follows:

Pre adoptive characteristics:

- Age at adoption (in months, from 1 month to 18 years old);
- Type of adoption (international vs domestic adoption);
- Institution(s) before adoption (yes or no);
- Amount of time spent in institution(s) (in months, from 1 month to 10 years);
- Adoption with biological siblings (yes or no).

Post adoptive characteristics:

- Presence of adoptive siblings (yes or no);
- Status of adoptive parents' couple (separated or still together);

- Links with the biological family (yes or no).

Plan of Analysis

To attain our first objective (i.e., compare the romantic experiences of the two groups), we performed t tests for independent samples. Dependent variables were the two indicators of romantic experience used in this study, namely dyadic adjustment and commitment. The independent variable was the group, namely nonadopted vs. adopted individuals.

To attain our second objective (i.e., identify the main determinants of romantic experience), we followed a three-step strategy. First, a series of t tests and correlations were used to explore the relationships between the variables of interest of this study. Within each group (adoptees and nonadoptees) t tests were used to measure the differences between men and women for attachment, mental health, resilience, dyadic adjustment, and commitment. In addition, correlations were used to test the links between the participants' ages and these variables of interest. Psychological characteristics, dyadic adjustment and commitment were then all included in a correlation matrix. Only for the adopted group, we tested the links between each of our pre and post adoptive characteristics separately and our measures of interest (attachment, mental health, resilience, dyadic adjustment, and commitment). A series of t tests were used when a categorical variable had to be examined (ie;, type of adoption, institution before adoption, presence of biological or adoptive siblings, status of the adoptive parents' couple and links with the biological family), whereas correlations were used when numerical variables (ie., age at adoption and amount of time spent in institution) were analyzed[3].

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[3] The number of analyzes being very important, we decided to report only significant results in the Results section.

Second, for the adopted group, the main determinants of romantic experience were further explored, using regression analyses. Specifically, two regression analyses were performed, the first analysis aiming at predicting dyadic adjustment and the second aiming at predicting commitment. In order to remove predictor variables which did not contribute to the explanation of our two dependent variables of interest, all of our twelve possible sociodemographic, pre-adoptive, post-adoptive, psychological and romantic experience determinants of dyadic adjustment and commitment were not simultaneously entered as predictor variables in these regression analyses. Instead, both regression analyses were computed in a stepwise manner, where only the predictor variables reducing AIC were retained. Nevertheless, entering several predictors simultaneously in a regression analysis can generate multicollinearity issues. To avoid such issues, variance inflated ratio was calculated for each predictor for both regression analyses. No variance inflated ratio above 5 was identified. Thus, multicollinearity issues appeared to be negligible in our two regression analyses. To ensure the interpretability of the results of our regression analyses, we also checked whether the distribution of their residuals did not deviate from normality. No skewness coefficients above the absolute value of .50 was identified. Thus, the distribution of our two regression analyses' residuals were not nonnormally skewed.

Thirdly, to determine whether determinants of romantic experience were different in each group, a series of regression analyses were finally performed. These regression analyses included (1) either dyadic adjustment or commitment as the dependent variable, (2) one of the psychological characteristics we assessed in both groups as an initial predictor variable, and (3) the group and its interaction with the psychological characteristic examined in the predictor variables. Once again, multicollinearity issues and the residuals' skewness were checked, and appeared to be negligible.

Results

Objective 1: Comparison of the Romantic Love Experience

Regarding our first objective, Table 3 sets out the descriptive statistics for the two dependent variables linked to romantic experience (dyadic adjustment and commitment). For each of these variables, the results of the t tests (see Table 3) showed that there were no significant differences between adoptees and nonadoptees (ps > .05). The former were therefore just as well adjusted and committed to their relationships as the latter.

(Table 3 near here)

Objective 2: Determinants of the Romantic Love Experience

First, we observed that there were no significant correlations between the participant's age and our measures for both groups (see Table 4). Then, we also controlled the effect of gender. In the adopted group, we only found a significant difference between men and women for mental health ($t = 2.29$, $p < .05$, $d = .35$). Women scored better than men on mental health (Cohen's d = .35). No significant gender differences were found for nonadoptees.

Psychological Characteristics.

Our second objective required us to model the links between the psychological characteristics and the romantic experience variables. Table 3 sets out the descriptive statistics for the independent variables for these variables for the two groups. We observed that the groups only differed significantly on the attachment variable, security dimension from the RSQ (see Table 3; $t = 4.95$, $p < .001$, $d = .47$). There were therefore no significant differences on mental health, or resilience, commitment in the relationship, and dyadic adjustment between adoptees and nonadoptees.

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The correlation matrix for the adopted group (see Table 4), yielded initial information on the links between these variables. Weak correlations were generally observed. Nevertheless, within the adopted group, we found moderate correlations between attachment and dyadic adjustment ($r = .38$), resilience and dyadic adjustment ($r = .33$), and mental health and dyadic adjustment ($r = .34$). The two measures of romantic experience (commitment and dyadic adjustment) were also strongly correlated ($r = .67$). For comparison's sake, the correlation matrix for the nonadopted group is also provided in Table 4.

(Table 4 near here)

Characteristics of the Adoption Pathway.

Pre adoptive characteristics. No significant correlations were found between age at adoption and all the measures. Likewise, there were no differences between domestic and international adoptees for all the measures examined ($ps > .05$). Interestingly, there were no differences between adoptees who spent time in institution before adoption and those who did not, except for mental health ($t = 2.15$, $p < .05$, $d = .37$): adoptees who spent time in institution reported better mental health. No significant correlations were found between the duration of the time spent in institution and our measures. Finally, no significant differences were found between adoptees who were adopted with biological siblings and those who were not ($ps > .05$).

Post adoptive characteristics. No effect from the presence of adoptive siblings was observed ($ps > .05$). By contrast, differences were observed for attachment security between adoptees with separated adoptive parents and those with parents that remain together ($t = -2.86$, $p < .01$, $d = -.40$). Adoptees whose parents remain together reported better scores for

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attachment security. No effects of the presence of links with the biological family were observed ($ps > .05$).

Regression Analysis

Table 5 shows the model (Model 1) yielded by the multiple linear regression for the dyadic adjustment variable among adoptees. This model predicted 56% of the variability of this variable. The significantly predictive variables were the presence of links with the biological family, security of attachment, mental health, and commitment. Table 5 also shows the model (Model 2) yielded by the multiple linear regression for the commitment variable among adoptees. This model accounted for 51% of the variability of this variable. Significantly predictive variables were the presence of links with the biological family and dyadic adjustment.

(Table 5 near here)

Interaction effect for attachment predicting dyadic adjustment

Finally, we found that the group moderated the effect of attachment security on dyadic adjustment ($\beta = .33$, $p < .01$). Attachment security is more strongly predictive of dyadic adjustment for adoptees than for nonadoptees (see Figure 1). By contrast, the group did not moderate the effect of our other possible psychological variables on dyadic adjustment or commitment.

(Figure 1 near here)

Discussion

Comparison of the Romantic Relationships Experience

Our first research objective was to compare adoptees' versus nonadoptees' experiences of romantic relationships. Based on the literature, we predicted that the former

would score less than the latter, whichever variable of romantic experience we measured. However, results did not confirm these predictions, as we failed to find any significant difference between the two groups on either dyadic adjustment or commitment. Feeney et al. (2007) obtain similar results as they found no differences in marital satisfaction between adoptees and nonadoptees. Our results are also in line with the meta-analysis that showed that adoptees were as adjusted as nonadoptees for most of the variables related to the romantic experience (Deluca Bishop, Claxton, & van Dulmen, 2019). To explain these results we obtained which contradict some of those obtained in several previous studies, we hypothesize that our sample differs from those of these studies on sociodemographic characteristics (age, culture, etc.). Specifically, the quantitative studies that have obtained different results than ours only had a sample of young adults from 14 to 21 years old (Feigelman, 1997). Adopted adolescents or young adults might be less satisfied, adjusted or committed in their relationships than older individuals and, for instance, married people. This result is in line with those of several authors (Acker & Davis, 1992; Crowell, Treboux, & Waters, 2002; Meier & Allen, 2009) who have shown that a partner's commitment in a relationship depends on the duration of the relationship and also on the marital status (married or not): the longer the relationship, the more committed the partners. Married people are also more committed than the others. This is an interesting result, as romantic experience of older adoptees has rarely been studied. We can then hypothesize that adoptees' romantic experiences might change and evolve throughout their lifespan. Our results contradict our initial hypothesis: although previous studies have shown that adoptees were less likely to get married and to forge intimate relationships, this does not seem linked to less commitment or dyadic adjustment when these relationships are formed. The typical dyadic adjustment and commitment scores observed could be protective factors for adoptees' relationships

durability, as commitment predicts the relationship's persistence (Rusbult, Martz, & Agnew, 1998).

Determinants of the Romantic Love Experience: Psychological Characteristics and Characteristics of the Adoption Pathway

Our second research objective was to investigate the links between participants' psychological characteristics and characteristics of their adoption pathway, on the one hand, and the experience of romantic relationships on the other hand. Several links had already been established in previous studies. For example, Feeney et al. (2007) showed that attachment decisively mediates the link between adoptive status and relationship outcomes. Our objective was to build on these findings and to delve deeper into the effect of psychological characteristics and characteristics of the adoption pathway on adoptees' romantic relationships.

To meet this second research objective, we began by comparing the two groups' ratings for the psychological variables. The only significant difference we found was for attachment (security dimension from the RSQ). Despite their less secure attachment, adoptees reported just as positive an experience of romantic love as nonadoptees. Nonetheless, many studies have shown that insecure attachment has a major impact on marital adjustment and satisfaction (Muraru & Turliuc, 2012). This paradox was reinforced when we analyzed correlations within each group. This showed that attachment security and dyadic adjustment were linked among adoptees but not among nonadoptees (see Table 4).

To understand this paradox (i.e., the fact that adoptees have satisfactory romantic relationships despite their insecure attachment), we can notice that, although their attachment security scores were lower than those of nonadoptees, this difference might not be strong enough to have significant consequences on romantic experience. Specifically, adoptees'

attachment security mean score is not that far from that of the general population (z score = -0.94). Moreover, the two regression models we calculated to predict the romantic relationship variables showed that attachment did decisively predict the adoptees' experience of being in a couple, as Feeney et al. (2007) showed. Attachment predicts dyadic adjustment and dyadic adjustment predicts commitment (Table 5). This result shows that, even if adoptees from our study were not dramatically insecure, they are sensitive to attachment security to predict their romantic love experience. Another explanation of this paradox could be in line with Owens' et al (1995) and Jones' et al (2018) considerations about the nature of attachment. These authors explain that attachment security may differ from one context to another. Although adopted individuals generally displayed an attachment security that is slightly lower than that of typical individuals, we ignore whether this slight deficit extends to the context of romantic relationship. Finally, an interaction effect emerged: the group (adoptees vs nonadoptees) has a moderating effect on the link between attachment and dyadic adjustment. Indeed, attachment predicted dyadic adjustment more strongly among adoptees than among nonadoptees. This result is in line with those of Feeney et al (2007) who concluded that attachment has a key role in adoptees' romantic experiences. Our results show that the predictive power of attachment on romantic experience is a specific feature of adoptees.

Regarding mental health, adoptees scored as nonadoptees. Previous studies have reported that mental health is correlated with the experience of romantic relations (Braithwaite & Holt-Lunstad, 2017). We can therefore surmise that adoptees' good mental health contributed to the great scores for romantic love experience. This is confirmed by the regression analysis (Model 1, Table 5), as mental health predicts dyadic adjustment. The same argument can be applied to the resilience measures. In the present study, adoptees are as resilient as nonadoptees. These results are especially interesting as they show that adoptees

manage to be as resilient as the general population. This contradict most of the studies showing adoptees' vulnerability.

Finally, we investigated the links between variables related to adoptees' adoption history and our measures related to the experience of romantic relationships. First, regarding what happened before adoption, we found that all the characteristics of the pre adoptive history (age at adoption, type of adoption, institutions before adoption and presence of biological siblings) were not associated with the romantic relationships experience. These results are not in line with Winward's (2005) results, as this author showed that the neglect or abuse experienced by adoptees before adoption were the most predictive factors regarding their satisfaction in their romantic relationships. Our results are also not in line with most previous studies that show an important effect of these characteristics on adopted adults' psychological outcome. Sonuga-Barke's et al (2017) or Howe's (2001) results, for instance, regarding the effect of age at adoption and institutionalization. However, most of these studies examined the influence of the adoption pathway on adoptees' attachment and adjustment. Thus, the effect of adoptees' adoption pathways on their romantic relationships might not be direct. Besides, most of the works studying the influence of the adoption pathway on adoptees' outcomes examine adopted children and not adopted adults. Another hypothesis could be that pre adoptive history might not have the same effect in the long run, but more analyses would be needed to explore this question.

Then, regarding post adoptive characteristics, we found that adoptive parents' separation had an effect on attachment security for each group. This result converges with previous findings regarding parental divorce, allowing us to conclude that parental separation remains a vulnerability factor for the security of attachment (Giuliani, Iafrate, & Rosnati, 1998; Sprecher, Cate, & Levin, 1998), especially for adoptees who are more exposed to parental divorce than nonadoptees (Turney & Wildeman, 2017). We also found that the

contact established between adoptees and their biological family significantly predict dyadic adjustment and commitment, whereas we didn't find any significant difference on our measures between adoptees who were in contact with their biological family and those who were not. These results are in line with those of Côté and Lalumière (2019) who didn't find any difference between the same subgroups regarding their adjustment. However, in the present study, having a contact with the biological family would increase commitment whereas it would decrease dyadic adjustment (see Table 5). Regarding dyadic adjustment, according to Irhammar and Bengtsson (2004) adoptees who search for their origins present a more insecure attachment than those who don't. Adoptees who have contact with their biological family might present a worse score for dyadic adjustment because of their insecure attachment. Then, according to Pacheco and Eme (1993) or Müller and Perry (2001), having contact with the biological family would increase adoptees' self-esteem, emotional outlook and their ability to relate to others. We can assume that these changes would allow adoptees to be more committed in their current relationships. Finally, our results are not in line with Balenzano, Coppola, Cassibba and Moro's (2018) observations. Indeed, these authors show that the presence of adoptive siblings is a protective factor for adopted children's adaptation. This last variable might lose its predictive power when adoptees become adults.

Conclusion

In conclusion, the present study improved existing knowledge about adopted adults by exploring new variables and modelling protective and vulnerability factors. In particular, our focus on participants' resilience sets our study apart from previous ones that concentrated mostly on adoptees' vulnerability. Thus, our study is one of the first one in which resilience was assessed in a large sample of adopted adults. By recruiting such a large number of participants and carefully matching the two groups, we were able to explore this research topic more rigorously than most previous studies had done. The finding that adoptees do not

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differ significantly from the general population on the experience of romantic relationships should help to dispel some of the stigma they feel. The interaction effects we observed led us to conclude that dyadic adjustment is particularly influenced by attachment among adoptees. This highlights the fact that more attention could be paid to adoptees' attachment, mental health and resilience, as they can be protective factors. Besides, in the present study, most of the pre and post adoption characteristics were not related to our measures. This result suggests that the effect of the adoption pathway on adoptees' romantic relationships might not be direct, or that some characteristics of the adoption pathway might have a low or no effect on adoptees' outcomes in the long run. Our results also suggest that more attention should also be paid to adoptees' needs regarding their search for their biological family, as it can have consequences on their couples. This is in line with the recommendations of Sànchez-Sandoval, Jiménez-Luque, Melero, Luque, & Verdugo (2019), who present the search as one of the three most important needs for adopted adults. These new observations will inform the practices of professionals offering family, couples or individual therapy to adoptees.

Limitations and Future Directions

Albeit encouraging, the results of our analyses may have been affected by potential biases. The first of these arises from the way we presented our research to each of the two groups. The topic given to the nonadoptees was "Romantic relationships and resilience", whereas the one given to the adoptees was "Adoption and romantic relationships". This difference in presentation may have induced different reactions across the groups. The second pertains to our assessment of mental health, as the GHQ does not take severe pathologies into account, meaning that our findings regarding mental health might be limited. The third limitation stems from the fact that adoptees were mostly recruited via nonprofit organizations, as this is the case in most studies of this population. Membership of a

community of adoptees is itself a sign that an individual has the ability to look for support and ask for help. Our sample of adoptees may not therefore has been wholly representative of the adoptee population in terms of resilience. It should however be noted that not all the adopted individuals recruited in the present study were members of a community of adoptees, and that most of those who were members of such communities were only social media users, which might not reflect an important commitment to the community. The fourth and last limitation arises from the lack of information regarding our participants' race and ethnicity in the present study. Relevant results could have been found if transracial and same race adoptees had been compared. Indeed, previous studies have already shown that transracial adoptees' relationships with their racial and ethnical status influence both their psychological adjustment (Feigelman, 2000) and their family experience. As parents for instance, transracial adoptees have to position themselves towards their children regarding ethnic or racial socialization (Zhou, Kim, Lee, & Lee, 2020). We can assume that these questions are also important in the context of the couple and that it could be a source of adjustment difficulties if the partners do not agree. Moreover, recent studies have highlighted the importance of the belonging to an ethnic group for transracial adoptees' adjustment (Banks, 2020; Samuels, 2009). We might question whether transracial adoptees choose partners of the same ethnic origin as their own in order to create a kind of racial group via their nuclear family. This choice could also have consequences for adoptees' relationships in the context of the couple.

Future studies should adopt a more rigorous methodology, specifically by ensuring a more equal sex ratio in their samples. More variables related to the adoption pathway could also be included in the analysis (for instance, the experience of neglect and abuse before adoption, or the age at which the adoptee person discovers her/his adoptee status as well as the situation in which she/he discovers it). More measures such as coping skills could be included to determine whether adoptees use specific coping strategies to lessen the impact of

stressors on their adjustment. Finally, it would also be interesting to compare adoption with other systems such as fostering, in order to assess the long-term effects of these care solutions for children deprived of their biological parents.

Declaration of Interest Statement

There is no conflict of interest to declare.

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Table 1. *Participants' Sociodemographic Characteristics (N=440)*

	Adoptees (N=220)	Nonadoptees (N=220)	Statistical Tests	p
Mean Age (SD)	35.41 (10.58)	35.12 (10.37)	t (438) = -0.29	.77
Gender			X^2 (1) = 0.04	.84
Women	169	169		
Men	51	51		
Marital status			X^2 (8) = 1.18	.99
Single	25.45%	26.82%		
In a relationship	17.73%	18.64%		
Cohabitation	13.64%	12.73%		
Civil Partnership	9.09%	9.09%		
Married	22.73%	23.18%		
Divorced in a relationship	2.73%	2.27%		
Divorced and single	2.73%	3.18%		
Separated	5.00%	3.64%		
Widov(er)	0.91%	0.45%		
Employment status			X^2 (7) = 16.7	.02*
Student	11.36%	12.27%		
Unemployed	10.00%	5.00%		
Employee	46.82%	48.18%		
Farmer	0.91%	1.36%		
Senior manager	19.09%	27.27%		
Business owner	7.73%	3.18%		
Retiree	3.64%	0.91%		
Parental status			X^2 (1) = 0.44	.51
Parents	48.18%	45.45%		
Nonparents	50.45%	54.55%		

Table 2. *Characteristics of Adoptees' Adoption Pathways (N=220)*

	Percentage
Type of adoption	
Domestic adoption	25
International Adoption	75
Country of origin (international adoptees)	
Europe	3.17
Asia	36.81
South America	36.35
Africa	2.25
Middle East	0.45
Age at adoption	
0-2 months	15.91
2-6 months	24.55
6 months-1 year	15.45
1-2 years old	13.18
2-3 years old	9.09
3-4 years old	4.55
4-5 years old	4.55
5-6 years old	4.09
6-7 years old	1.82
7-8 years old	1.82
After 8 years old	2.72
Institution(s) before adoption	
Yes	80.91
No	19.09
Adoptive parents' couple	
Separated	32.73
United	67.27
Links with the biological family	
Yes	40.45
No	59.55
Adoption with biological siblings	
Yes	13.64
No	86.36
Adoptive siblings	
Yes	41.91
No	58.09
	Mean (SD)
Amount of time spent in institution(s) before adoption (in months)	7,56 (10,40)

Table 3. *Descriptive Statistics and Comparisons between Adoptees and Nonadoptees*

	Adoptees		Nonadoptees					
	Mean	SD	Mean	SD	t	df	p	Cohen's d
Dyadic Adjustment	68.03	14.11	70.80	12.89	1.74	288	.08	
Commitment	92.21	34.53	94.58	30.10	0.45	288	.653	
Attachment Security	2.86	0.63	3.17	0.58	4.95	438	< .001***	0.47
Attachment Detachment	3.25	0.63	3.36	0.58	1.95	438	.052	
Mental Health	4.25	3.53	4.09	3.68	-0.48	438	.625	
Resilience	128.60	24.17	131.03	18.85	1.18	438	.240	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4. *Correlation Matrix for Adoptees and Nonadoptees*

Variables		1	2	3	4	5	6	7
1. DAS[1]	Adoptees	-						
	Nonadoptees	-						
2. IMS[2]	Adoptees	.68***	-					
	Nonadoptees	.66***	-					
3. RSQ SEC [3]	Adoptees	.32***	.15	-				
	Nonadoptees	-.02	-.02	-				
4. RSQ DET[4]	Adoptees	.003	-.06	-.13*				
	Nonadoptees	-.14	-.24	.00	-			
5. GHQ[5]	Adoptees	-.34***	-.23**	-.22 **	-.15*			
	Nonadoptees	-.35***	-.26**	-.16*	-.00	-		
6. Resilience	Adoptees	.32***	.25 **	.29***	.09	-.28***		
	Nonadoptees	.28***	.14	.06	-.04	-.42***	-	
7. Age	Adoptees	.01	.01	.11	.12	.10	.13	
	Nonadoptees	-.16	-.09	.15	.07	-.09	.19	-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

[1] DAS: dyadic adjustment; [2] IMS: commitment; [3] RSQ SEC: attachment security; [4] RSQ DET: attachment detachment, [5] GHQ: mental health.

Table 5. *Multiple Linear Regression Model for the Adopted Group*

Variables	b	SE b	β	R^2
Model 1. Dyadic Adjustment				.56
Age	-.140	.093	-.107	
Type of adoption	-3.134	2.195	-.225	
Links with biological family	-3.391	1.689	-.243*	
Attachment (security)	4.776	1.339	.219**	
Mental Health	-.647	.260	-.157*	
Commitment	.327	.033	.616***	
Model 2. Commitment				.51
Gender	7.092	4.158	.270	
Presence of adoptive siblings	-5.171	3.449	-.197	
Links with biological family	8.839	3.359	.337*	
Attachment (security)	-4.618	2.722	-.113	
Attachment (detachment)	-4.108	2.793	-.093	
Dyadic adjustment	1.321	.124	.701***	

Note. Both regression analyses were performed in a stepwise manner, where the predictor variables retained increased model fit as assessed by AIC. * $p < .05$, ** $p < .01$, *** $p < .001$
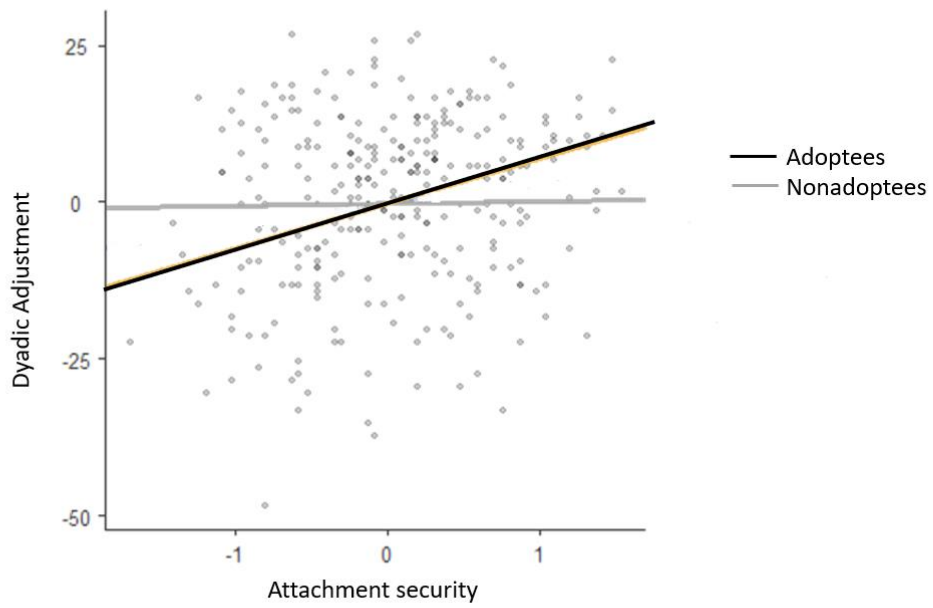
Figure 1. Interaction Analysis between Adoptees and Nonadoptees for Attachment Security

predicting Dyadic Adjustment