RESEARCH ARTICLE

Strategies for Detecting Infidelity: An Explorative Analysis

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Abstract

People frequently adopt extra-pair mating strategies, which could be potentially harmful for their legitimate partners. In order to protect themselves from the costs of cheating, people need first to detect infidelity, and for this purpose, they employ specific infidelity-detection strategies. By using a combination of qualitative research methods, we identified 47 acts that people perform in order to detect their partners' infidelity. Using quantitative methods, we classified these acts into six broader strategies for detecting infidelity. Participants indicated that they were more likely to employ the "Observe changes in her/his behavior," followed by the "Ask and observe her/his reactions," and the "Check where she/he is" strategies. Almost 58% of the participants indicated that they would use three or more strategies in order to detect their partners' infidelity. We also found that higher scorers in Machiavellianism and psychopathy were more likely to employ the identified strategies than lower scorers. In addition, sex and age effects were found for most strategies.

Keywords Infidelity-detection strategies · Infidelity · Cheating · Dark Triad

Introduction

Forming intimate relationships is a human universal behavior, and so is infidelity (Buss, 2000; Fisher, 1992). Infidelity appears to be a widespread phenomenon. For instance, studies in the USA indicate that about 30% of heterosexual married men and about 20% of heterosexual married women are expected to have an extra-pair affair during their lifetime (Greeley, 1994; Tafoya & Spitzberg, 2007). Similarly, couples in the USA who are currently dating reported a 70% incidence of infidelity (Allen & Baucom, 2006). Although those who engage in extra-pair relationships are careful to hide them from their partners, they are not always successful in doing so, one reason being that people employ specific strategies in order to detect infidelity. The current research aimed to identify and study these strategies. Infidelity and the strategies for detecting it could be best understood within an evolutionary theoretical framework that will be discussed next.

The Evolutionary Roots of Infidelity

Mating is strategic, in the sense that people employ specific strategies which direct their mating effort toward achieving specific mating goals (Gangestad & Simpson, 2000). The most widely adopted strategy is forming long-term intimate relationships. For instance, a recent study found that more than 80% of the 6273 men and women who took part aspired to form eventually a life-long long-term relationship (Apostolou, 2021). There are good evolutionary reasons why selection forces have favored long-term mating. To begin with, children require considerable long-term parental investment from both parents in order to reach sexual maturity. A long-term intimate relationship between parents increases the probability that children receive reliably the investment they require (Lancaster & Lancaster, 1987). Furthermore, in the pre-industrial context, where most human evolution took place (Tooby & Cosmides, 1990), there are no social protection systems, and people rely heavily on others in order to survive. Thus, an intimate partner constitutes a key source of material and non-material support, which are necessary for one's survival (Apostolou & Wang, 2020).

People can derive considerable fitness benefits (i.e., survival and reproduction benefits) from forming extra-pair relationships. More specifically, men and women can receive material and non-material benefits from extra-pair

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partners, including gifts and support in times of need (Buss & Schmitt, 1993; Greiling & Buss, 2000). They can also form relationships with individuals who could replace their long-term partners if the latter abandon them or die (a common occurrence in a pre-industrial context) (Buss, 2000). Individuals may also form extra-pair relationships in order to probe other partners and engage in mate-switching (Buss et al., 2017). Men can increase their reproductive output by having children with extra-pair partners, while women can secure good genes for their children from casual relationships with extra-pair mates (Buss, 2000, 2017). These potential fitness benefits of extra-pair mating favor the adoption of an extra-pair mating strategy.

Cheating Detection

Adoption of an extra-pair strategy can be costly for a legitimate partner. More specifically, legitimate partners risk losing part of their mates' investment to others, risk losing their partners to competitors, risk contracting a sexual transmitted disease, and men in particular, risk raising other men's children as their own without being aware of it (Buss, 2000; Gangestad & Simpson, 2000). These costs are likely to lead the legitimate partner to terminate the intimate relationship. For instance, studies on divorce find that infidelity constitutes a common reason for the termination of marriage (Amato & Previti, 2003; De Graaf & Kalmijn, 2006; Hawkins et al., 2012). Yet, extra-pair strategies are beneficial when one remains in a long-term intimate relationship. That is, these strategies enable individuals to reap simultaneously the benefits of casual and long-term mating (Apostolou, 2021). However, if culprits are caught and their long-term intimate relationship terminates, they will forego all the benefits arising from it. Similarly, legitimate partners may agree to continue the relationship on the condition that their partners terminate their extra-pair relationships, which means that the latter will lose all the benefits from such relationships. It follows that for an extra-pair mating strategy to be effective, it needs to go undetected, and thus, secrecy constitutes a key aspect of extra-pair mating.

The secretive nature of extra-pair mating, along with the potentially high costs it entails for legitimate partners, would favor the evolution of strategies that enable people to detect infidelity. More specifically, individuals who fail to detect their partners engaging in extra-pair relationships would find themselves suffering considerable costs, such as losing their mates' investment to others. On the other hand, those who are able to detect infidelity can minimize these costs for instance, by warning their partners to terminate their extra-pair relationship. They can also provide benefits by having a deterrent function. That is, if individuals know that their partners can effectively deploy infidelity-detection strategies, they would refrain from engaging in extra-pair

mating in the first place, because they would fear that they would be detected.

The evolution of infidelity detection strategies would generate selection pressures favoring the evolution of extra-pair strategies that could escape detection, which in turn would favor better infidelity detection strategies that would select for better extra-pair strategies and so on. This co-evolutionary arms race would not have a winner (for more on coevolution and arms race, see Dawkins, 1989). Accordingly, we expect that people would have at their disposal a battery of strategies for detecting infidelity that sometimes would and sometimes would not be successful in doing so.

The Current Study

The theoretical framework discussed above predicts that people would be able to deploy a range of infidelity-detection strategies. To the best of our knowledge, there has not been any systematic study that has attempted to examine the strategies that people use in order to detect infidelity, which was the purpose of the current work. Given the lack of relevant research and the fact that our theoretical framework does not make specific predictions about the strategies people use, our study was designed to be explorative.

Furthermore, our study aimed to identify sex and age differences in the infidelity-detection strategies. We do not have a priori hypothesis about age differences; however, we predict that women would be more likely to employ infidelity-detection strategies than men. The reason is that since men do not have to carry the burden of pregnancy, their reproductive output is proportional to the number of women they gain sexual access (Symons, 1979). Especially in a pre-industrial context, where contraceptive options are limited, an extra-pair strategy could enable men to increase their reproductive success considerably, which is not the case for women. Consistent with this argument, evidence indicates that men are more likely than women to engage in casual sex (Hald & Høgh-Olesen, 2010; Lippa, 2009; Schmitt, 2005), have a stronger desire to engage in sexual extra-pair relationships (Apostolou, 2019; Prins et al., 1993), and are more likely to cheat on their partners (Allen & Baucom, 2006). This sex-difference in the adoption of an extra-pair mating strategy would result in a sex-difference in the adoption of infidelity-detection strategies. In particular, since men are more likely to cheat than women, it follows that women are more likely to be victims of infidelity than men. Thus, because women are more at risk of being cheated, we predict that in order to protect themselves from the costs of infidelity, they would be more likely than men to employ infidelity-detection strategies.

Furthermore, infidelity-detection strategies are likely to involve acts such as lying, deceiving about one's intention, and invading a partner's privacy. Accordingly, we argue that

Dark Triad personality traits would predict willingness to use these acts. More specifically, the Dark Triad refers to three subclinical, socially aversive traits, namely, Machiavellianism, narcissism, and psychopathy (Paulhus & Williams, 2002). Machiavellianism is characterized by deception, manipulation, and exploitation of others that stem from a cynical disregard of conventional morality (Jakobwitz & Egan, 2006), while psychopathy is characterized by deficits in both self-control and affect, as well as antisocial behavior (Lykken, 1995). Accordingly, we predict that people who score high in these traits would be more likely to employ strategies which involve lying, deceiving, and invading privacy. The third component of the Dark Triad is narcissism, with high scorers in this dimension being grandiose, attention-seeking, self-centered, and tending to disregard others (Corry et al., 2008). Accordingly, we predict that narcissism would have either no effect in predicting use of infidelity-detection strategies or a negative effect, with high scorers having little interest in what their partners are doing, and thus, being less likely to use such strategies.
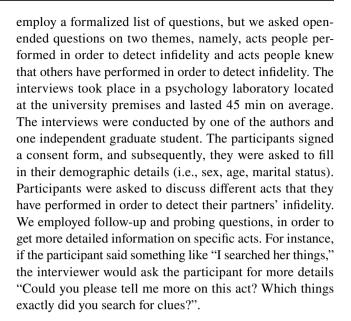
Study 1

Methods

Participants

The study was designed and executed in a private university located at the Republic of Cyprus and received ethics approval from the department of social sciences ethics committee. Participants were recruited by advertising the study in social media, such as Facebook and Instagram, and by word of mouth. The conditions for participating were to be at least 18 years old. In order to get richer information, we attempted to target participants who were in a relationship and who were older and thus more experienced with intimate relationships. Participants did not receive any form of reimbursement. In the in-depth interviews, 20 Greek-speaking participants took part (10 women and 10 men), who had a mean age of 32.3 years ($SD = 5.8$). Furthermore, 45.2% of the participants were in a relationship, 25.6% single, 22.2% married, and 7.0% divorced. In the open-ended survey, 285 participants took part (185 women and 100 men), who had a mean age of 33.8 years ($SD = 11.5$). In addition, 35.6% of the participants were married, 30.5% in a relationship, 23.7% were single, and 10.2% divorced.

Materials

In-Depth Interviews

In order to identify the different acts that people perform in order to detect their partner's infidelity, a series of semi-structured interviews were conducted. That is, we did not employ a formalized list of questions, but we asked open-ended questions on two themes, namely, acts people performed in order to detect infidelity and acts people knew that others have performed in order to detect infidelity. The interviews took place in a psychology laboratory located at the university premises and lasted 45 min on average. The interviews were conducted by one of the authors and one independent graduate student. The participants signed a consent form, and subsequently, they were asked to fill in their demographic details (i.e., sex, age, marital status). Participants were asked to discuss different acts that they have performed in order to detect their partners' infidelity. We employed follow-up and probing questions, in order to get more detailed information on specific acts. For instance, if the participant said something like "I searched her things," the interviewer would ask the participant for more details "Could you please tell me more on this act? Which things exactly did you search for clues?".

Open-Ended Survey

The open-ended survey consisted of two parts. In the first part, participants were given the following scenario: "You are in an intimate relationship, and you suspect that your partner is unfaithful. Write down some things you would do in order to find out if your partner is cheating on you." In the second part, demographic information was collected (i.e., sex, age, marital status).

Analysis and Results

The data from the in-depth interviews and the open-ended questionnaires were analyzed together using a procedure employed in previous research (Apostolou & Wang, 2020). In more detail, two independent graduate students (i.e., students who were not involved in the project, so they were not biased) were employed who, on the basis of participants responses, created supraordinate categories. Similar responses were added to a supraordinate category, and when a dissimilar response arose, a new supraordinate category was created. Acts with unclear or vague wording were eliminated. After processing about 30% of the responses, the data for each coder were compared. There was a general agreement between coders for most of the supraordinate categories. For cases where there was not complete agreement, one of the authors was consulted, and eventually, agreement was reached for 100% of the supraordinate categories. Subsequently, coders proceeded to code the remaining responses. In total, 47 acts that people would perform in order to detect their partners' infidelity have been identified and are listed in Table 1.

Study 2

Methods

Participants

The study was designed and ran in a private university located at the Republic of Cyprus and received ethics approval from the department of social sciences ethics committee. Participants were recruited by promoting the link of the study to social media, including Facebook and Instagram, and it was also forwarded by e-mail to students and colleagues who were asked to forward it further. The requirements for participation were to be an adult (at least 18 years old). Participants did not receive any monetary or other reward for participating. In total, 942 Greek-speaking individuals took part (539 women, 403 men). The mean age of women was 33.3 ($SD = 11.6$), and the mean age of men was 36.1 ($SD = 12.2$). Furthermore, 35.1% of the participants were single, 34.3% were in a relationship, 25.4% were married, and 5.2% were divorced.

Materials

The survey had three parts. In the first part, participants were given the following scenario: "You are in a romantic relationship, and you suspect that your partner is cheating on you. Indicate how likely you are to do each one of the following in order to determine if your suspicions are correct:" Subsequently, participants were asked to rate the 47 acts identified in Study 1, in the following Likert scale: 1—not at all likely, 5—very likely. In the second part, Dark Triad traits were measured using the Short Dark Triad (SD3) instrument, which has good validity and reliability (Jones & Paulhus, 2014). It consisted of 27 questions that participants had to answer using a five-point scale (1- strongly disagree to 5 strongly agree). In the third part, demographic information was collected (sex, age, marital status).

Data Analysis

In order to classify the 47 acts identified in Study 1 to broader strategies, we employed principal components analysis using the direct oblimin as the rotation method. In order to examine whether the extracted strategies were predicted by sex, age, and Dark Triad, we employed the MANCOVA test, where the acts composing each strategy were entered as dependent variables; the sex was entered as a categorical independent variable, and the age and the three variables indicating scores in the Dark Triad traits were entered as continuous independent variables. The

analysis was performed six times, once for each extracted strategy. In order to avoid the problem of alpha inflation arising from multiple comparisons, Bonferroni correction could be applied, setting alpha to 0.008 (0.05/6). Accordingly, the reader may consider any effects above this level as not significant.

Furthermore, in order to identify sex, age, and Dark Triad effects on the number of strategies participants were willing to use, we performed an ANCOVA test. More specifically, the number of strategies participants were willing to use was entered as dependent variable, sex was entered as a categorical independent variable, and age and the three Dark Triad variables were entered as continuous independent variables.

Results

Infidelity-Detection Strategies

The KMO statistic indicated that our sample was very good for principal components analysis to be performed (KMO = 0.96). We employed parallel analysis (Crawford et al., 2010), which indicated that the 47 acts could be best classified in six factors. Accordingly, six factors have been extracted and are presented in Table 1. Internal consistency (Cronbach's alpha) ranged from 0.78 to 0.91 (Table 1). Subsequently, we created six new variables, each depicting participants' mean scores for each extracted strategy. We performed second-order principal components analysis on these variables, and the results produced one factor solution, indicating that the extracted factors could not be classified to broader domains.

The first strategy that emerged was the "Search her/his things," where participants indicated that they would search their partners' things, including their phones, personal computers, social media accounts, clothes, and credit card bills. The second strategy to emerge was the "Ask and observe her/his reactions," where participants would say directly to their partners that they suspected that they have been unfaithful or would discuss the issue of infidelity more generally, and subsequently, they would observe how they would react. In the "Use of friends" strategy, people would attempt to extract information from friends they had in common with their partners, they would ask their own friends to try to extract information from their partners, and they would consider asking someone to flirt with their partners to see how they would react.

In the "Observe changes in her/his behavior" strategy, participants would attempt to observe changes in their partner's behavior, including whether they made changes to their appearance, clothing, habits, and use of perfume. In the "Objective evidence collection" strategy, participants would spy on their partners using bugs, hidden cameras,

Table 1 The extracted factors and the respective factor loadings in Study 2

Factors Acts	Factor loadings	Cronbach's α
Search her/his things		.92
I would search his/her personal computer	.909	
I would search his/her mobile	.869	
I would try to gain access to his/her social media account (e.g., Facebook)	.792	
I would search his/her e-mails	.779	
I would search his/her things	.764	
I would search his/her clothes	.637	
I would follow his/her activities in social mediate (e.g., Facebook) for anything suspicious	.594	
I would try to eavesdrop when he/she talks on the phone	.524	
I would search his/her credit card bills for unjustified expenses	.498	
Ask and observe her/his reactions		.78
I would tell him/her what reasons led me to these suspicions, and I would observe his/her reactions	.863	
I would ask him/her directly to see how he/she would react	.845	
I would discuss the issue of infidelity with him/her and observe his/her reactions	.630	
I would ask for explanations for suspicious behaviors to see how he/she would react	.578	
I would pretend that I already know that he/she is not faithful to me to see his/her reaction	.440	
I would discuss with him/her the infidelity of an acquaintance to see how he/she would react	.355	
Use of friends		.80
I would try to fish for information from our mutual friends	.760	
I would put a friend of mine to fish him/her	.748	
I would ask our mutual friends if they have noticed any changes in his/her behavior	.714	
I would put someone to flirt with him/her to see how he/she would react	.504	
I would lie to him that I saw him with someone else in order to see how he/she would react	.455	
I would try to spend more time with him/her in order to know what he/she is doing and where he/she is	.283	
Observe changes in her/his behavior		.91
I would observe if he/she changed his/her outfit	−.797	
I would observe if he/she paid more attention to his/her appearance	−.723	
I would observe if he/she changed his/her habits	−.713	
I would observe if he/she was more distant than usual	−.613	
I would observe if he/she increased the amount of perfume he/she uses	−.603	
I would notice any unusual manifestation of love towards me	−.603	
I would notice if we had sex like before	−.601	
I would notice any changes in his/her behavior, e.g., if he/she is more distant, if he/she is very careful/does not leave the mobile phone in his/her hands etc	−.560	
I would observe the time he/she spends on his/her mobile phone	−.537	
I would notice changes in the way his/her friends behave towards me	−.508	
I would observe his/her behavior for anything suspicious	−.471	
I would become more observant	−.471	
I would notice if he spends more time on social media	−.454	
I would look for marks on his/her body	−.360	
Objective evidence collection		.88
I would use bugs	.848	
I would use hidden cameras	.832	
I would hire a private investigator	.780	
I would pretend to be away (e.g., business trip), but I would stay to watch what he does	.627	
I would spy on him	.459	
I would let him/her have free time and watch what he/she does	.366	
I would create a fake profile on social media (e.g., Facebook) to see if my suspicions are valid	.335	
Check where she/he is		.84

Table 1 (continued)

Factors Acts	Factor loadings	Cronbach's α
I would pass by unannounced from the place he told me he would be to see if he was really there	− .602	
I would try to find out if he/she went where he/she told me he/she would go	− .558	
I would try to cross-reference what he tells me (e.g., I go for coffee with him/her)	− .556	
I would return home at unpredictable times	− .466	
I would visit him/her unannounced at work	− .339	

and by employing the services of a private investigator. In the "Check where she/he is" strategy, participants would attempt to confirm that their partners were where they said they were, by dropping unexpectedly in the places they were supposed to be.

Mean Scores and Frequencies

In order to find out which strategies were more likely to be used, we calculated the means and the standard deviations for each one, and we placed them in a hierarchical order. In addition, for each strategy, we have estimated the percentage of mean scores which were above "3." Given our scale, these percentages would indicate how many participants reported that they would be willing to use each strategy. As we can see from Table 2, at the top of the hierarchy was the Observe changes in her/his behavior, with almost 80% of the participants indicating that they were likely to adopt it, followed by the Ask and observe her/his reactions and the Check where she/he is strategy. Moreover, we have calculated that 13.3% of the participants were willing to use one strategy, 17.8% two, 19.8% three, 20.8% four, 9.7% five, and 7.3% six strategies. Also, 11.4% of the participants indicated that they would not be likely to employ any of the identified strategies. In effect, most participants were willing to employ more than one strategy; for instance, 57.6% of the participants indicated that they would be willing to use three or more strategies.

Significant Sex, Age and Dark Triad Effects

Moving on, as we can see from Table 2, there was a significant main effect of sex for almost all strategies. Men gave higher scores than women to the Objective evidence collection and to the Check where she/he is strategies, but the latter difference was not significant. For the remaining strategies, women gave significantly higher scores than men. As indicated by the effect size, the largest difference was for the Search her/his things, followed by the Objective evidence collection strategy. Moreover, age was significant for all strategies. The largest effect was over the Objective evidence

collection and the Search her/his things strategies, where older participants gave higher scores than younger ones.

Moving on to the Dark Triad, Machiavellianism had a significant main effect on all strategies. The effect was positive, that is, higher scorers were more likely to use the strategy in question. As indicated by the effect size, the largest effect was over the Observe changes in her/his behavior, followed by the Search her/his things strategy. Furthermore, with the exception of the Observe changes in her/his behavior, psychopathy had a significant and positive main effect on all strategies. As indicated by the effect size, the largest effect was over the Objective evidence collection, followed by the Use of friends. Finally, there was no significant main effect of narcissism for any strategy.

With respect to the number of strategies that people were willing to use, the ANCOVA results indicated that there was a significant main effect of sex, $[F(1,789) = 13.09, p < 0.001, \eta_p^2 = 0.016]$, with women indicating a higher willingness to employ more strategies ($M = 2.82, SD = 1.64$) than men ($M = 2.79, SD = 1.78$). Furthermore, there was a significant main effect of age $[F(1,789) = 16.14, p < 0.001, \eta_p^2 = 0.020]$, with a positive coefficient ($b = 0.020$), indicating that older participants indicated that they would use more strategies than younger ones. In addition, there was a significant main effect of Machiavellianism $[F(1,789) = 30.86, p < 0.001, \eta_p^2 = 0.038]$, with a positive coefficient ($b = 0.513$), indicating that higher scores were more likely to employ more strategies than lower scorers. Similarly, there was a significant main effect of psychopathy $[F(1,789) = 15.46, p < 0.001, \eta_p^2 = 0.019]$, with a positive coefficient ($b = 0.426$), indicating that higher scores were more likely to employ more strategies than lower scorers.

Discussion

By using a combination of qualitative research methods, we managed to identify 47 acts that people perform in order to detect their partners' infidelity. By using quantitative research methods, we classified these acts into six broader strategies for detecting infidelity. Participants indicated that they were more likely to employ the

Table 2 Mean scores, sex, and age effects in Study 2

Factors	Overall Mean (SD)	Percent	Women Mean (SD)	Men Mean (SD)	Sex p value	Sex η_p^2	Age p value	Age η_p^2	Machiavellianism p value	Machiavellianism η_p^2	Psychopathy p value	Psychopathy η_p^2
Observe changes in her/his behavior	3.64 (0.86)	77.9%	3.70 (0.84)	3.57 (0.89)	.001	.042	(+) <.001	.099	(+) <.001	.056	.251	.021
Ask and observe her/his reactions	3.43 (0.95)	66.7%	3.52 (0.90)	3.31 (0.99)	<.001	.031	(−) .001	.026	(+) .002	.025	(+) <.001	.033
Check where she/he is	3.37 (1.16)	60.6%	3.33 (1.13)	3.43 (1.19)	.229	.007	(+) <.001	.040	(+) <.001	.052	(+) .004	.018
Search her/his things	2.82 (1.21)	41.9%	2.87 (1.19)	2.76 (1.22)	<.001	.073	(+) <.001	.141	(+) <.001	.053	(+) .001	.033
Use of friends	2.37 (0.97)	22.1%	2.40 (0.95)	2.33 (0.99)	<.001	.039	(−) <.001	.060	(+) <.001	.046	(+) <.001	.047
Objective evidence collection	2.09 (1.01)	16.8%	1.97 (0.91)	2.24 (1.10)	<.001	.050	(+) <.001	.136	(+) <.001	.039	(+) <.001	.067

The signs in parenthesis indicate the direction of the relationship

Observe changes in her/his behavior, followed by the Ask and observe her/his reactions and the Check where she/he is. Almost 58% of the participants indicated that they would use three or more strategies in order to detect their partners' infidelity. We also found that, higher scorers in Machiavellianism and psychopathy were more likely to employ these strategies than lower scorers. In addition, we found significant sex and age effects for most strategies.

Attracting and retaining extra-pair partners requires considerable mating effort, including spending time with them and improving one's looks. Making such an effort would inevitably result in people changing their routine, paying for instance more attention to their looks. Furthermore, people who engage in extra-pair relationships may fall for their extra-pair partners, becoming effectively more emotionally distant from their legitimate ones. On the other hand, in order to hide their infidelity, people may become more caring and manifest their love. Moreover, one of the reasons people engage in extra-pair mating is to have sex with different individuals (Apostolou, 2019); thus, having sex with an extra-pair partner may reduce the frequency of sexual contacts people have with their legitimate partners. Overall, having an extra-pair relationship usually involves some change in behavior, which is what the Observe changes in her/his behavior strategy exploits in order to detect infidelity.

We found that this was the strategy that most participants indicated they would use (about 78%). One reason is that it is unlikely that people would manage to have an extra-pair partner without changing their routine and behavior, which means that this strategy could be particularly effective. Another reason is that using this strategy does not require considerable effort and allocation of resources. In addition, it is difficult for culprits to figure out that their partners have adopted such strategy, so they may be less careful in taking precautions not to be detected.

Not everyone is effective in lying. For instance, some people change the tone of their voice when they are dishonest (Hughes & Harrison, 2017). This fact is exploited by the Ask and observe her/his reactions strategy: Individuals directly confront their partners and observe their responses for clues of lying. This was the second most widely adopted strategy, with almost 67% of the participants indicating a willingness to adopt it. Such willingness may testify to the effectiveness of this strategy in detecting cheating, but it may also reflect participants' overconfidence that they are able to detect whether their partners are dishonest.

People who engage in extra-pair relationships lie to their legitimate partners about where they are in order to be able to meet their extra-pair partners. The Check where she/he is strategy works by detecting such lying: Individuals would go to places where their partners were supposed to be, so as to find out for themselves if they were honest. More than

60% of the participants indicated that they would be willing to use this strategy.

People call their extra-pair partners, send them e-mails, spend time with them, have sex with them, and so on, acts that can leave marks behind. This possibility is exploited by the Search her/his things strategy: Individuals attempt to find evidence of their partners' infidelity by searching their clothes, computers, e-mail and social media accounts, mobile phones etc. In comparison to the Observe changes in her/his behavior and the Ask and observe her/his reactions strategies, this strategy provides more solid evidence that a partner is cheating. However, fewer participants indicated that they would employ it than the other two, one possible reason being that it is more invasive, making people feel that they do something wrong.

Culprits may be extra careful in hiding their infidelity toward their partners, but they may be less vigilant in doing so toward others. The Use of friends strategy exploits this discrepancy by motivating people to extract information from their own and their partners' friends. Yet, only about one in five participants indicated that they would be willing to use it. One possible reason is that this strategy has limited effectiveness: Culprits may still be highly vigilant in hiding their extra-pair relationship from others. Another reason is that, when asking friends for help, people effectively inform them that their partners may be cheating, which could lead to gossip and status loss, costs that they may not want to bear, especially if their suspicions turn out to be incorrect.

The most direct way to detect infidelity is to spy on partners and catch them in the act. Accordingly, in the Objective evidence collection strategy, people use bugs, hidden cameras, hire detectives, and follow their partners in order to find out if they are cheating. Although this strategy can potentially offer the most solid evidence for infidelity, it was the least likely to be used, with only about 17% of the participants indicating that they would be willing to employ it. One possible reason is that this strategy is costly in terms of time and money. For instance, people need to spend considerable time following their partners around or to spend money in order to have others doing so for them. Another reason it that this strategy may backfire: If culprits realize their partners are spying on them, they may retaliate, accusing them for invasion of privacy and for lacking trust, and at the same time, become more careful not to be detected.

Culprits may not be effective in all aspects of their effort to keep their infidelity secret. For instance, some may be very effective in lying to their partners, so the Ask and observe her/his reactions strategy may not work, but they may be less careful not leaving clues of their infidelity so, the Search her/his things strategy may catch them. This being the case, if individuals employ more than one infidelity-detection strategies, they have better chances to

detect infidelity, which possibly explains why about 58% of the participants indicated that they were willing to use three or more strategies.

Consistent with our original prediction, for most strategies, women gave significantly higher scores than men. As discussed in the "Introduction," one reason is that men are more likely to engage in extra-pair mating, which in turn makes it more important for women to detect infidelity in order to protect themselves. Yet, the effect sizes were small or moderate, indicating that the two sexes did not differ considerably in their willingness to employ the identified strategies. Age had significant effect on all strategies. The largest effect was over the Search her/his things and the Objective evidence collection, with older participants being more likely to use these strategies than younger ones. One possible explanation is that older participants may be more likely to live together with their partners, which facilitates the deployment of these strategies. As we originally argued, Machiavellianism and psychopathy predicted the adoption of most of the infidelity-detection strategies, with higher scorers being more likely to adopt these strategies than lower scorers. Still, the effects were small or moderate, indicating that people do not have to score high in these dimensions in order to employ the extracted strategies.

Our findings can provide insights on the counter-strategies that people are likely to use in order to keep their extra-pair mating hidden from their partners. More specifically, to counter the Observe changes in her/his behavior strategy, people would attempt to keep their behavioral patterns similar to the ones prior to the initiation of the extra-pair relationship. To counter the Ask and observe her/his reactions strategy, they would remain calm, and they would perhaps pretend to be mad at their partner for having falsely accused them. To counter the Check where she/he is strategy, they would avoid saying that they go to places where their partners can easily check if they are actually there. For instance, they would not say that they go to a specific café with a friend, as their partner can easily pass by to check if they are there. To counter the Search her/his things strategy, they would be vigilant in not leaving any clues of their extra-pair mating behind, erasing, for instance, incriminating e-mails. To counter the Use of friends strategy, people would be careful to hide their extra-pair mating from their friends and acquaintances and especially from the ones they have in common with their partner. To counter the Objective evidence collection strategy, they would be vigilant in their home as their partners may spy on them and would be extra careful that nobody follows them when they are going to meet their extra-pair partners. Future research needs to examine in detail the strategies that people use to counter the infidelity-detection strategies, as well as to assess the effectiveness of infidelity-detection and counter infidelity-detection strategies.

One limitation of the current research is that it was based on self-report data, which are subject to several biases. One such bias is that some of the participants may not have had prior experience with infidelity, so they answered hypothetically about the strategies that they would employ. Furthermore, our research was based on a non-probability sample, so its findings may not readily apply to the population. In addition, the study took place in the Greek cultural context, so its finding may not generalize to other cultures. Therefore, cross-cultural research is necessary in order to examine how cultural differences affect the use of infidelity-detection strategies. Moreover, we expect that the adoption of the extracted strategies would be predicted by several variables, including prior experiences with infidelity, the degree of attachment to one's partner, motivation to keep the relationship, and so on, which have not been assessed by the current study. Thus, future studies need to examine the effects of additional variables on the use of infidelity-detection strategies.

People are frequently unfaithful to their partners. Accordingly, the current study has attempted to identify the different strategies that individuals employ in order to detect their partner's infidelity. Considerable more theoretical and empirical work is required, however, in order to understand this complex and fascinating phenomenon.

Declarations

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