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A Narrative Review of Mate Choice: Evolutionary, Cognitive Orientation and Combined Perspectives

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Abstract: Evolutionary psychology had revolutionized the mate choice in past years and the framework of a cognitive orientation based on intelligence and social status had attracted a lot of attention. Therefore, this study follows the intersection between evolutionary principles, cognitive models, and theoretical insights that can link these researches on mate choice that is called emerging evolutionary epistemology in recent years. The research was a narrative review study and the literature was searched through Google Scholar, Web of Science, Scopus, PubMed, Magiran, Science Direct and SID with the words "sexual attraction, spouse selection, attractiveness in evolutionary psychology, attractiveness in cognitive psychology", and the relevant citations were included in this study. Search engines have been used for the last 5 years (From 2016 onwards) and more than three hundred documents were reviewed and extracted according to the criteria. The results indicated that as much as in evolutionary psychology, physical attractiveness plays a role in choosing a spouse, personality, intelligence, decision making, cultural and social status of the spouse as cognitive factors also play important role in creating attractiveness. Accordingly, new models have been developed by combination of these two models at three levels (1) perceptual adaptation that records sexual signs with respect to sensory input, (2) judgmental adaptations that assess multiple signs in evaluation and (3) the search strategies that people pursue in trying to form a pair. Overall, more collaboration between personality psychologists, psychoanalysts, behavioral geneticists, and evolutionary psychology is needed to well understood the mate choice mechanisms.

Keywords: Sand play training, social skills, multiple problem behaviors, children with autism spectrum disorder

Introduction

Why do people fall in love? How do they decide who to marry? How can they be considered beautiful or exciting? Over the past few years, research on these questions has evolved with a surprising combination of evolutionary and cognitive perspectives. Various studies have been conducted in this field and each of them has addressed a part of this important issue. Some of them have dealt with evolutionary perspective and some have dealt with cognitive strategies. There are few studies on the combination of these two approaches. There are studies that use evolutionary theory as an explicit functional framework to understand human sexual attraction (Buss, 2020) and mating behaviors (Davis & Arnocky, 2020) to select a mate (Darwin, 1888) even though in the same sex people (Apostolou, 2020).

A key component in evolutionary psychology is natural selection, in which humans and animals compete for potential reproduction (Durham et al., 2019). Sexual selection is a major factor in the evolution of human sexual differences and behaviors. Sexual selection is a component of natural selection in which the success and survival of mating is a benefit. In natural selection, environmental factors put pressure on humans to produce more species of offspring between generations (for example, new modern human

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tribes that can produce fire, tools, or agriculture). Those who are more likely to get food and shelter have longer lives; have the potential to become spouses or leaders. Humans are a social species, and psychological processes must be chosen to facilitate group interaction (Fayyaz, 2019).

To understand the implications of human sex culture and sexual behaviors, we need to find an evolutionary definition of how culture affects sexuality. Culture has created ancient artifacts throughout history that have been adapted to human thought and action. Culture also lays the foundation for human development, because it involves successful and adaptive participation in human activities. This progress helps humans to interact with other people. In addition, culture is responsible for maintaining and transmitting social norms, beliefs, conventions, etc. (Jahoda, 2012). Given this definition, it is easy to argue that culture plays a key role in our interaction with other people. Because mating and sexual activity require social interaction, it is not easy to ignore the role of culture in shaping these interactions. In addition to culture, social intelligence and cognitive factors are facilitated by long-term interpersonal relationships (Fletcher et al., 2015). Human mating behaviors may be a function of large individual differences in biology, motivation, cognition, and personality traits (e.g., the five-factor theory of personality) in any particular population. These factors have been investigated by cognitive scientists for spouse selection (Marzoli et al., 2018).

Cognitive theory states that a man is likely to pursue different cognitive strategies to succeed in select a spouse according to his intelligence and social status. Because women are more likely to need long-term commitment (sexual and emotional and parenting their children), men need to refine their relationship strategies to meet these demands. In other words, women have put pressure on men to adopt long-term mating strategies (Wlodarski et al., 2015). One of these strategies is romantic love. Romantic love includes attachment, care, sex and creates cognitive bias. Cognitive bias allows for a long-term relationship and reduces the likelihood of infidelity and / or polygamy. Even in cultures where polygamy is allowed, romantic love does not allow people to find another mate. In cases where the man's conscience is a strong force, there may be conflicts between partners, jealousy, insecurity, and perceived threats (Fletcher et al., 2015). This line of research about cognitive strategies in finding spouse demonstrate ways in which evolved psychological mechanisms recruit perceptual, memory, and neural systems to produce adaptive responses in important relationship challenges (Maner et al., 2012).

These Darwinian and cognitive theories led to a renaissance in spousal selection researches, which now is so controversial. Today's human has changed a lot compared to man in Darwin's time. Advances in technology have led people to use smarter strategies to choose their mates. In addition to these clever strategies, it is still unclear why people are subconsciously attracted to people whom they are not rationally fit for them. It seems that a combination of these strategies should be used to explain the behavior of today's complex human beings in order to understand the meaning of these behaviors. The purpose of this paper is to investigate the intersection between evolutionary principles, cognitive models, and theoretical insights that can link research on spouse selection to an "emerging evolutionary epistemology." This is done primarily via a review of the evolutionary attractiveness literature in psychology. Although little information is available concerning the reproductive consequences of

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evolutionary attractive traits, the assumption is made that knowledge of the proximate mechanisms involved, cannot help us to understand the ultimate functions that are designed to fulfill marriage. In this context, it would appear that the cognitive processing mechanisms that are used to evaluate attractiveness for marriage are essentially similar in all individuals, although they may generate somewhat different behavioral outputs in different social environments and other cultures. This study also clarifies how cognitive and evolutionary mechanisms are combined in people to use for selection their spouses and to what extent these mechanisms are explained by emerging evolutionary epistemology.

Material and Methods

The research was narrative review article and to find authoritative articles and books on sexual attraction from an evolutionary and cognitive orientation perspective, using Google Scholar, Web of Science, Scopus, PubMed, Magiran, Science Direct and SID Database was used. The keywords "sexual attraction, spouse selection, attractiveness in evolutionary psychology, attractiveness in cognitive psychology" was searched. Search engines have been used for the last 5 years, and more than 300 documentaries were reviewed and extracted according to the following criteria. To select the documents used, the headings found by the search engine were first examined for thematic relevance. Articles were selected from reputable journals with high impact factor as well as from authoritative authors in this field. After reviewing the articles that were more complete than the others, they were selected as the reference used. In the case of books, the criteria for selection were thematic relevance and accessibility. After reviewing the title, the articles were evaluated in the next step in terms of the relationship between the abstract and the intended purpose. The selected items were thoroughly studied and finalized. Selected documents were taken from the receipt. The collected material was divided and summarized.

Results

Many studies examined the evolutionary attractiveness effect on spouse selection. They mention many physical attractiveness factors such as age, vocal, upper body strength, clothes attractiveness and even details on the face (Lehmann et al., 2018; Lewis et al., 2017; Pisanski & Feinberg, 2019; Sell et al., 2017). For example, Pazhoohi and Kingstone (2020) tried in their research to identify and prioritize the facial features that contributes to facial attractiveness. They suggest that due to evolutionary reasons the length of the eyelashes plays an important role in beauty and mate choosing. They conclude that there is a difference between male and female faces and suggest that while in general, eyelashes of an optimum ratio are considered more attractive, this preference is not solely a biologically adaptive phenomenon and is influenced by cultural norms.

Another study designed by Apostolou et al. (2019) using quantitative research methods, examined reasons that could lead people to divorce in an evolutionary perspective according to their judgment of their spouses. They found that being a harmful spouse was the most important factor for divorce,

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followed by incompatibility and in-law problems. They also found significant sex differences in several factors such as women indicating a higher willingness than men to divorce a harmful spouse. In addition, participants with children were less willing to divorce a harmful spouse than those who had no children. Buss (2020) investigated the search strategies, which individuals strive for to form a relationship. He provides a contextual-evolutionary theory of human mating strategies. In this study, it is assumed that men and women have developed different psychological mechanisms as their short-term and long-term strategies for choosing a spouse. These mechanisms subconsciously include assessing fertility, seeking commitment and evaluating him or her as a good parent. Overall, this study concludes that these unconscious mechanisms may alter mating strategies.

Cognitive researches on choosing a spouse have focused more on psychological characteristics such as personality, intelligence, decision making. Mutual cultural questionnaires show that psychological characteristics are very important in human mating. Both sexes rate intelligence and kindness very highly, women value wealth and social status more than men, and men value youth and physical attractiveness (Buss, 1989).

One of these studies that examined the cognitive strategies effect on spouse selection is personality was conducted by Parsaei and Refahi (2017). They concluded that spouse selection criteria are influenced by different psychological variables. Among these different variables related to spouse selection, personality traits and attachment styles have been considered a lot.

One of the other cognitive factors for spouse selection is intelligence. In the study of Dunkel et al. (2019) cross-trait assortment for intelligence and physical attractiveness in a long-term mating context was investigated. They concluded that more physically attractive individuals are, they would have a spouse that was more intelligent, but this association would be moderated by their sex. They also suggest that more physically attractive women would have more intelligent husbands, but it is not so in men.

In another study Aftab and Saqib (2018) studied educational and social considerations in spouse selection. They concluded that people prefer to marry in the age of 21-25 years with the age difference of 4-6 years of their spouses. Educational considerations, personality traits and same religious background were the top preferred features of the spouse selection criteria in these people.

There are other studies that deal with the importance of the role of culture in choosing a spouse and marriage and believe that the cognitions that are formed from childhood in society and a particular culture play an important role in the formation of relationships, especially long-term relationships (Hendawy & Stollmann, 2020; Inden, 2020). One of these studies was conducted by Randles and Avishai (2018) with the aim of the culture effect on marriage in contrast to individualism. According to these authors, high emphasis on individual self-fulfillment causes people not to pay much attention to marriage and as a result, society tends towards more individualism. At the same time, there are huge costs for advertising marriage and having children. This research suggests that it is better for today's complex human codifying and teaching new marital norms adapted to dominant understandings and individual desires for personal happiness and self-actualization achieved through marriage.

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On the other hand, there are some studies that show although some cognitive characteristics of people for society are not useful; they help people find more spouses. One of these psychological features is psychopathy. One of these studies conducted by Brazil and Forth (2020). This study focused on the problems that psychopaths impose on society and can be at odds with their attractiveness and sexual success in some of their relationships. According to these authors, psychopaths have "special design" features for choosing a female spouse, which creates the desired effects in their future intimate relationships. The results of their research showed that psychopathy is related to social intelligence and physical attractiveness of men from the perspective of women (Brazil & Forth, 2020).

Some studies combined the cognitive strategies and evolutionary perspective and compare these two important visions together effect on spouse selection and are called “emerging evolutionary epistemology”. For example, Zhang et al. (2019) studied the sex differences in mate preferences in many countries. They concluded that stronger preferences in women for mates with good earning capacity and stronger preferences for physically attractive mates in men is smaller in the countries with greater gender equality.

In another study conducted by Buss and Schmitt (2019) mate preferences and their behavioral manifestations was investigated. They concluded that humans invent novel cultural technologies to better implement ancient sexual strategies and cultural evolution may be dramatically influencing their evolved mating psychology.

Marzoli et al. (2018) studied human mating strategies from past causes to present consequences. They compare cognitive strategies and evolutionary perspective in mate finding. They suggest that there are cognitive strategies to find mate such as personality, psychiatric disorders, social behavior, violence. There are also other evolutionary factors including individual differences, relationship type and environment affect mating strategy that individuals pursue (for example, awareness of one's own attractiveness impinges on mating standards).

Another study comparing evolutionary psychology and cognitive strategies in finding a mate has been conducted by Ehlebracht et al. (2018). They focused on two characteristics: the physical attractiveness (evolutionary perspective) and social nature of attractiveness (cognitive perspective). Their research method was experimental. The results of their research show that according to the cognitive point of view, the social desirability of individuals makes them more attractive, but this issue is seen only in the field of finding a partner for a long-term relationship. In addition, they showed that the spouse's preferences for certain social characteristics (e.g., trustworthiness) were more dependent on social issues for men than women due to different evolutionary pressures.

Overall, a review of the studies on spouse selection from the perspective of evolutionary approach and cognitive orientation showed that the three components of physical attractiveness (evolutionary perspective), cultural and social factors (cognitive perspective) that most researchers agree on. In the discussion and conclusion section, these three components have been discussed more comprehensively.

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Discussion

The studies that have evolutionary perspective mostly focused on the physical attractiveness. They mention many physical attractiveness factors such as age, vocal, upper body strength, clothes attractiveness and even details on the face like eyelashes length (Lehmann et al., 2018; Lewis et al., 2017; Pisanski & Feinberg, 2019; Sell et al., 2017). Despite the numerous efforts of evolutionary psychologists to explain human sexual strategies and behaviors, we can easily find limitations in their explanations. These limitations include how loyalty is a very strong concept, and men may want to keep one of their spouses while being opposed to their basic instinct. In addition, some features, such as psychopathy, are not suitable for adjustment in society, but may lead to more relationships for these people. The evolutionary view states that any behavior that leads to greater adaptation leads to greater survival and mating, and is therefore incapable of explaining certain features, such as psychopathy.

Some other researches focused on cognitive strategies in spouse selection. They focused more on psychological characteristics such as personality, intelligence, decision making, cultural and social status of the spouse (Buss & Schmitt, 2019; Marzoli et al., 2018; Zhang et al., 2019). It is also important to identify the role of emotions and culture, especially when it comes to how people choose their spouses. Cognitive science is defined as the study of knowledge and consciousness. But knowledge is always about knowing something, and intelligence is always necessary to achieve a goal. As research on spouse selection becomes more cognitive, it becomes clearer that, at least in this context, knowledge is about knowing the others, and that intelligence paves the way for reproduction. But the cognitive point of view does not explain very well that although many people are sure that a person is not suitable for them, they still love him and he is very attractive to them.

There is also another perspective that combines evolutionary principles, cognitive models, and theoretical insights that can link research on spouse selection and is called emerging evolutionary epistemology. These researches suggest that the evolutionary origins and cognitive goals of choosing a spouse are both important for reaching a stronger agreement in the future, and it is argued that a common chapter between evolutionary psychology and cognitive modeling is proposed at three levels: (1) The perceptual adaptation that records sexual signs according to sensory input, (2) the judgments that consider several signs in assessing overall attractiveness, and (3) the search strategies, that individuals strive for a form a relationship. More generally, a cognitive perspective on spouse selection can open a way to the prediction about adaptive problems in the environment that is in compatible with evolutionary perspective. In other words, choosing a spouse requires the integration of all these steps. In order to succeed a in a short and long-term, choosing the right spouse and taking better care of the children, both evolutionary and cognitive theory strategies are necessary. To achieve these goals, both perspectives must have adaptive strategies. Today's human is very complex and shows complex behaviors. These behaviors cannot be explained by evolutionary theory or cognitive theory alone. To describe the subtleties of human behavior requires more knowledge that combines these two approaches.

Based on the arguments presented in this article, it is important to conduct empirical research to understand whether there is a correlation or causal relationship between evolutionary theory, physical

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attractiveness, and sexual behavior with cognitive perceptions about social status. In addition, the relationship between culture and emotion should be examined about human spouse selecting. Since man is a social being, it is necessary to consider how social interactions in different cultures affect the norms of human spouse selecting. The standard view of evolutionary psychology is that human mental adaptation is exposed to powerful choices in which very few genetic changes remain. Therefore, more collaboration between cognitive psychologists, psychoanalysts, behavioral geneticists, and evolutionary psychology is needed to understand the spouse selection for human psychological traits.

Finally, since most research is being done on the Western population, the scope of the study can be expanded to provide a better understanding of how culture and emotions affect human behavior, especially from the perspective of evolutionary psychology in Eastern cultures.

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Ethical considerations

In the present study, all ethical standards governing research, including correct citation, were fully observed.

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