

Sex Differences in Physical, Verbal, and Indirect Aggression: A Review of Recent Research

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In the present article, recent research on sex differences in aggressive styles is reviewed. The concept of indirect aggression is particularly presented and discussed. It is argued that it is incorrect, or rather, nonsensical, to claim that males are more aggressive than females. A theory regarding the development of styles of aggressive behavior is presented.

The study of female aggression as a phenomenon in itself has only recently begun to receive due attention. Buss (1961) claimed that women are so seldom aggressive, that female aggression is not worth the trouble to study. Aggression is, accordingly to his view (at that time), a typically male phenomenon. Olweus (1978), who investigated bullying, i.e., aggressive harassment, among adolescent school children, was of the opinion that bullying occurs so rarely among female adolescents that he excluded girls as subjects from his research. Later, he has changed his opinion, and he is now investigating bullying also among girls (e.g., Olweus, 1986). Frodi, Macaulay, and Thome (1977) reviewed 314 studies on human aggression, and found that 54% of these concerned men only, and only 8% women. These facts are certainly revealing.

Björkqvist and Niemelä (1992) pointed out that most studies on human aggression have been conducted by men, and even when females have been the object of study, aggression has been operationalized in typically 'male' fashions, usually as physical aggression. For instance, by observational techniques in school yards, only physical aggression can clearly be distinguished. There is, accordingly, no wonder that Maccoby & Jacklin, in their well-known review from 1974, considered it self-evident that males are more aggressive than females. Their conclusion was almost exclusively

based on observational studies in kindergarten and school yards, and rough-and-tumble play was, in fact, in many of the reviewed studies regarded as aggression.

Later reviews on sex differences in aggression, such as White (1983), Hyde (1984), Eagly & Steffen (1986), and Björkqvist & Niemelä (1992), are much more cautious, and mention sex differences in quality rather than quantity. Hyde claims that only 5% of variation sources in aggression scores can be explained by sex, while 95% is to be explained as within-sex variation, or coincidence.

PHYSICAL, VERBAL, AND INDIRECT AGGRESSION

There are good reasons to doubt whether it is meaningful at all to debate whether one sex is more or less aggressive than another. One has to take into account the type of conflict. Firstly, is it a matter of aggression *between groups*, or of *interpersonal* aggression within a group, or within a family. Secondly, the sex of the opponent is of critical importance: *male-male*, *female-female*, and *male-female* encounters should clearly be distinguished from each other. With respect to interpersonal aggression, same sex encounters are, for instance much more frequent than between-sex encounters (Björkqvist and Niemelä, 1992; Burbank, 1987).

If we limit aggression to physical strategies only, then it is certainly true that males are more aggressive than females, at least in Western societies. But, as anthropological studies have shown, such as research by Fry (1988, 1990, 1992) and Cook (1992), it is not a universal truth. It does not hold for all cultures.

As far as domestic violence is concerned, the well-known study by Straus, Gelles, and Steinmetz (1974) found no sex difference in the amount of violence by husband and wife, in a North American study. Severe physical injury was, however, more often reported as a consequence of male violence. It should perhaps be noted that husbands and wives were not compared with respect to the severity of mental injury and pain induced in their conflicts.

There is no reason to believe that females should be less hostile and less prone to get into conflicts than males. But being physically weaker, they simply have to develop other means than physical ones in order to reach successful results. Accordingly, one should not expect women to develop and use exactly the same strategies for attaining their goals as men do. If strategies for aggression and conflict resolution are learned, not innate, then women are likely to learn different methods than men. Impor-

tant aspects are power and capacity, not only physical, but also verbal, and social. Human beings have nonphysical powers which are far beyond those of any other animal. Accordingly, human aggression has faces and forms, inconceivable within the realm of animal aggression. Extrapolations from animal studies are, therefore, misleading.

Aggressive styles are also subject to developmental change during the life course. As indicated, animal aggression is mostly physical. Also among young children lacking verbal skills, aggression is predominantly physical. Verbal skills, when they develop, are quickly utilized not only for peaceful communication, but also for aggressive purposes. When social skills develop, even more sophisticated strategies of aggression are made possible, with the aggressor being able to harm a target person without even being identified: Those strategies may be referred to as *indirect* aggression (Lagerspetz, Björkqvist, and Peltonen, 1988; Björkqvist, Lagerspetz, and Kaukiainen, 1992).

There are good reasons to believe that, as far as adult interpersonal conflict is concerned, physical aggression is really the exception, not the rule. Other means are more likely to be used.

Burbank (1987) reviews anthropological research on female aggression. She finds females of different cultures having a large potential of aggressive means to use in order to get even with their husbands, such as, e.g., locking them out of the house for the night: she regards this as an act of aggression. Burbank (1987) found females seldom to resort to physical aggression against their husbands, but they did so, occasionally. The most common reason was that their husbands had committed adultery. Burbank found, however, that women are much more often aggressive towards other women than towards men.

Kuschel (1992) describes female aggressive strategies on the pacific Bellona Island, a culture characterized of extreme male dominance and physical violence. Even there, women had their ways. In conflicts with other women, they were able to use physical means, such as hair-pulling: this was not possible in conflict with males. If they wanted to hurt their husband, they had to resort to circumvent strategies. One method used was to invent a mocking song, which was spread across the island, and the husband was humiliated. If a woman wanted to get a man killed, she could persuade relatives to commit the homicide, or possibly even hire an assassin. A mocking song is a kind of indirect aggression, in which the aggressor tries to hurt the object without putting herself into immediate physical danger. So is the persuasion of a third party (relative or assassin) to commit a homicide.

THE TESTOSTERONE-AGGRESSION LINK: MYTH OR TRUTH?

One of the main arguments why males so often have been suggested to be more aggressive than females is the presumed testosterone-aggression link. The connection between testosterone level in human blood serum or saliva, and aggression, is not, however, established, and the testosterone-aggression link is very uncertain, as far as *homo sapiens* is concerned.

It is true that among nonhuman vertebrates, males are in general (physically) more aggressive than females. This is, however, not true for all species, as shown by Adams (1992). Results regarding humans are inconsistent: while some studies find a relationship between androgen level and aggressiveness (e.g., Olweus, Mattson, Scallning, and Löow, 1980), others do not (e.g., Lindman, von der Pahlen, Öst, and Eriksson, 1992). As null findings are less likely to become published, it is possible, perhaps even probable, that the number of conducted studies with a negative outcome largely outnumbers that of those with a positive. Reviewers also tend to disagree about the testosterone-aggression link: While some claim that a connection can be established (e.g., Donovan, 1985), others, such as Benton (1983a, 1983b, 1992) are of the opinion that, on basis of existing data, there is no reason to suggest that human aggression is related to level of testosterone. Benton (*ibid.*) points out that the claim of a relationship between testosterone and aggression is based primarily on animal data. Among humans, social and cognitive mechanisms play a much greater role than physiological factors. The closer animal is to man, the smaller the influence of testosterone on aggression. In man, Benton (1992) suggests, aggressive behavior is a reflection of psychosocial history, and differences in aggressiveness can be attributed to level of testosterone to a very limited extent, if at all.

Four double-blind experiments, in which androgens were induced to human male subjects and the level of aggressiveness was measured with different instruments, have recently been reported. Three studies did *not* find an increase in aggressiveness as a consequence of androgen intake (Anderson, Bancroft, and Wu, 1992; Bahrke, Wright, Strauss, and Catlin, 1992; Björkqvist, Nygren, Björklund, and Björkqvist, 1993), while in one study (Hannan, Friedl, Zold, Kettler, and Plymate, 1991), an increase was reported.

Björkqvist, Nygren, Björklund, and Björkqvist (1993) point out that studies suggesting a connection between testosterone and aggression may receive undue attention, since they are in line with the, in our culture, cherished "myth" about the aggressive male and the subordinate female. They present, as an example, the different interest aroused by two experiments conducted by Edwards (1969) and Edwards and Herndon (1970). In the

first experiment, it was reported that female mice treated with androgens at birth were more aggressive as adults than non-treated female mice. In the second study (Edwards and Herndon, 1970), newborn female mice were treated with *estrogen*. They, too, fought more as adults (!).

THE LEARNING OF AGGRESSIVE STRATEGIES IN MALES AND FEMALES: THE EFFECT/DANGER RATIO

Sex differences in aggression are, accordingly, most likely developed through learning mechanisms, and not directly linked to hormones. There is much to support this opinion. As above was pointed out, there is no clear evidence between hormones and aggression among humans — perhaps because the development of higher cerebral functions among humans made other styles of aggression than physical ones possible: more subtle, but still highly effective methods, in which direct physical power is not a prerequisite.

Björkqvist, Österman, and Lagerspetz (1993) suggest that sex differences, and developmental trends in regard to aggressive behavior, may both be theoretically explained by what they refer to as the *effect/danger*, or *cost/benefit*, *ratio* of aggression.

The *effect/danger* ratio is an expression of the *subjective estimation of the likely consequences of an aggressive act*. The aggressor assesses the relation between a) *the effect of the intended strategy*, and b) *the danger involved, physical, psychological, or social*. The objective is to find a technique that will be effective, and, at the same time, incur to as little danger as possible. The aggressor tries to maximize the effect, and to minimize the risks involved. For example, physical aggression is effective, but also risky. If unsuccessful, the aggressor is likely to get hurt him/herself. No wonder that physical means are supplemented with, and substituted by, verbal and indirect means of aggression, when verbal and social skills develop. Indirect means may, for instance, have a much more favorable *effect/danger* ratio. The more able the aggressor is at staying out of reach of the opponent, and at assessing the opponent's retaliation resources, the better (s)he will be at avoiding counter-attack, and minimizing risks. Indirect aggression can be highly effective and, if successful, the aggressor will remain unidentified.

MISCONCEPTIONS ABOUT INDIRECT AGGRESSION

As pointed out, older reviews about sex differences tended to favor the opinion that boys are more aggressive than girls, while more recent ones are more cautious, describing qualitative differences rather than quantitative

ones. This may reflect changes in sex role attitudes within our society. It may also be a reflection of the fact that suitable instruments for the study of indirect aggression were not until recently developed. Further, indirect aggression has not been unambiguously conceptualized as social manipulation, or as an intention to harm the target person in a circumvent manner.

The dichotomy of direct and indirect aggression was first mentioned by Buss (1961). Judging from the items of the subscale *indirect aggression* in the well-known Hostility & Guilt Inventory by Buss and Durkee (1957), his conception of indirect aggression was very different from the one by Lagerspetz, Björkqvist, and Peltonen (1988), and Björkqvist, Lagerspetz, and Kaukiainen (1992). The Buss-Durkee Inventory subscale of indirect aggression includes items like "*slamming doors*", "*banging on tables*", "*throwing things*", "*breaking things*", and "*having temper tantrums*", in its subscale of indirect aggression. These kinds of behavior certainly describe something that is different than social manipulation in fact, they seem to describe hostile emotional outbreaks. When the present author has factor analyzed the Buss-Durkee Inventory, these items grouped together in the same factor as items, from another subscale, i.e., *irritability*.

Frodi, Macaulay, and Thome (1977), in their otherwise very well-written review on sex differences regarding aggression, admitted that the concept of indirect aggression posed a problem when they were reviewing research reports. While some authors, according to them, used the dichotomy of direct vs. indirect aggression in order to distinguish between physical and verbal aggression (!), others used indirect aggression as a description of aggression with or without a target. A third group of author used indirect aggression to describe aggression with a substitute target. They decided to define indirect aggression in the third manner mentioned, which has added to the confusion about indirect aggression.

Feschbach (1969) was the first to report a sex difference with respect to indirect aggression, with an operationalization reminding of the one by Lagerspetz, Björkqvist, and Peltonen (1988): She found girls to exclude newcomers from a group more than boys, during the first four minutes of interaction.

When the present author with colleagues started to investigate female aggressive styles during adolescence, interviews with adolescent girls were conducted, and it was asked how *they, their friends, and enemies behaved, when angry with or in conflict with another child*. Not surprisingly, girls described indirect, manipulative methods, such as gossiping, exchanging friends, trying to win others to one's side, excluding from groups, writing nasty notes, and so on, as typical types of behavior when in conflict with each other. On basis of these pilot interviews, the most frequent behaviors mentioned were included in our instrument. Peer nomination techniques

have in number of studies proved more valid and reliable than self-reports of aggression (Eron, Huesmann, Lefkowitz, and Walder, 1972; Huesmann and Eron, 1986; Huesmann, Eron, Lefkowitz, and Walder, 1984). Our research group had, to, been successfully using peer nomination techniques (Björkqvist, Ekman, and Lagerspetz, 1982; Lagerspetz, Björkqvist, Berts, and King, 1982). Accordingly, it was decided to use a peer rating technique, and an instrument which facilitated the measurement of both direct (physical and verbal) and indirect strategies of aggression among school children was developed through a number of studies. The latest version of the instrument is referred to as the Direct & Indirect Aggression Scales (DIAS; Björkqvist, Lagerspetz, and Österman, 1992).

Since indirect means of aggression are used exactly in order to cover one's harmful intentions from the target person, self-reports of indirect aggression are not likely to be honest. Lagerspetz, Björkqvist, and Peltonen (1988) also found that self-reported and peer rated indirect aggression did not correlate very well with each other. Accordingly, indirect aggression could not have been successfully investigated before peer nomination and peer rating techniques were invented and refined.

THE DEVELOPMENT OF INDIRECT AGGRESSION AND SOCIAL INTELLIGENCE

In Björkqvist, Lagerspetz, and Kaukiainen (1992), and Björkqvist, Österman, and Kaukiainen (1992) a theory regarding the development of different aggressive styles in interpersonal aggression was presented. According to this theory, aggressive behavior tends to appear in the above mentioned order: 1) direct physical, 2) direct verbal, and 3) indirect aggression. Indirect aggression was by them defined as *social manipulation* as mentioned above: The target is attacked, not directly, but circuitously, and the aggressor can thereby remain unidentified and avoid counterattack.

Björkqvist, Lagerspetz, and Kaukiainen (1992) showed that indirect aggression increases drastically at about the age of 11, especially among girls. However, also among boys, the mean level of physical aggression decreases during late adolescence, to be replaced mainly by verbal, but also indirect means of aggression. This is most likely a consequence of increased social intelligence.

To test this hypothesis, Kaukiainen, Björkqvist, Lagerspetz, and Niskanen (1993) conducted a study in which the relationship between social intelligence, empathy, and the use of indirect aggressive strategies were investigated among adolescents of two age groups, 11- and 15-years of age. Indirect aggression was measured with DIAS (The Direct & Indirect Ag-

gression Scales; Björkqvist, Lagerspetz, and Österman, 1992), while empathy and social intelligence were measured with methods developed specifically for the study in question. It was hypothesized that, as indirect aggression requires a certain level of social intelligence, these two would have a positive correlation. Empathy also requires social intelligence, but a high level of empathy was expected to be incompatible with indirect aggression. The hypotheses were confirmed. Social intelligence was also higher among 15-year-old than among 11-year-old girls. A similar developmental trend was, however, not found among boys.

INDIRECT AGGRESSION AMONG OTHER PRIMATES

Björkqvist, Lagerspetz, and Kaukiainen (1992) thought that indirect aggression would not be possible among subhuman species, since they would lack the social intelligence required. This has later been shown not to be true: Holmström, reviewing ethological research on aggression among primates, i.e., Fossey's (1983) research on gorillas, and Goodall's (1977, 1986, 1991) studies of chimpanzees, found that female great apes make use of indirect aggression in a number of situations. Holmström (1992) summarizes his review by saying that indirect strategies were observed among female great apes during the following three circumstances:

1. In the power struggle among females, by cannibalistically feeding on the competitor's offspring;
2. against the male, in sexual contexts; by refusal of cooperation to sexual access; also in competition for food, and feeding on the male's offspring;
3. through the offspring, by rearing the young and transmitting models of behavior from one generation to the next. The female thus prevents and restrains certain kinds of action in the offspring, permitting and favoring others. Accordingly, the social intelligence of higher primates should not be underestimated. As Byrne and Whiten (1987) have shown, chimpanzees are also fully capable of faking nonverbal signals, in order to deceive competitors.

INDIRECT AGGRESSION IN OTHER CULTURES AND AGE GROUPS

Since sex differences in indirect aggression during adolescence were first reported, Fry (1990, 1992, 1993) has reported indirect aggressive strate-

gies among females in non-Western cultures as well: among Zapotec Indians (1990, 1992), and among females in Argentina (1993). In the latter case, adults were studied. Burbank (1987) in her review of anthropological research on female aggression in 137 societies, describes a number of ways in which females resort to indirect aggression, although she does not use the term. Kuschel (1992) describes how Bellonese women use indirect aggression in certain situations, in order to get even in a rough male society.

Björkqvist, Österman, and Lagerspetz (1993) pointed out that they had so far studied only aggressive styles among adolescents. They wanted to investigate whether males later in life 'caught up' with females, and developed their own, gender-specific types of indirect aggression. They found that adult males, too, developed strategies by which they tried to conceal their hostile intentions, but they used more direct, but still covert, strategies than females, i.e., they were faking that their intention was nonaggressive, but their communication with the target tended to be more direct than that of females. Adult females still used more indirect (socially manipulative) strategies than males.

CONCLUSION

Recent research pertaining to the concept of indirect aggression and sex differences related to different aggressive styles was reviewed. It was suggested that when in conflict, the individual makes his/her choice of aggressive strategy after an assessment based on the effect/danger ratio (Björkqvist, Österman, and Lagerspetz, 1993): The object is to find a strategy as effective as possible, while at the same time exposing the individual to as little danger as possible. Therefore the usefulness of covert, indirect strategies. Verbal strategies, too, put distance to the opponent, and they are accordingly less dangerous than physical aggression. Therefore, when verbal skills develop, verbal means of aggression tend to replace physical ones whenever possible.

The choice of strategy is naturally dependent on the situation: When exposed to direct physical attack, the individual is forced to defend him/herself physically. Anything else would be ineffective.

Since females are physically weaker than males, they may early in life learn to avoid physical aggression, and instead develop other means. Choice of aggressive strategy may become partly habitual, and also reinforced by social norms in the society in question.

The use of indirect aggression requires a certain level of social intelligence, and it was found that indirect aggression, indeed, correlates with measures of social intelligence (Kaukiainen, Björkqvist, Österman, Lager-

spetz, and Niskanen, 1993). Indirect aggressive strategies have been reported in a number of cultures, and more often among females than among males, although great cultural variation occurs (e.g., Cook, 1992). Also female primates have been found to utilize indirect strategies of aggression (Holmström, 1992).

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