A small study suggests that when two pigs are fighting, a bystander pig can intervene to either reduce the number of attacks by the aggressor or to help reduce the anxiety of the victim. The study of 104 domestic pigs, published in the journal *Animal Cognition*, reveals the complex social groups that pigs form and how they may resolve conflict.

In *social animals*, conflict resolution involves either the reunion of former opponents—an aggressor and victim—after an aggressive event (known as reconciliation), or the introduction of a third-party *bystander* to reduce further aggression or anxiety (known as triadic contacts). These conflict-resolution strategies are important to maintain balance in social animal groups and reduce victim anxiety, but it is unclear how this applies to domestic pigs.

Giada Cordoni, Ivan Norscia and colleagues from the University of Torino in Turin, Italy observed how a group of 104 pigs housed at the ethical farm Parva Domus in Turin resolves conflict after fighting. The authors could identify most generations of pigs based on their breed, size and markings, but also genetically tested 31 pigs across different generations to determine relatedness across the whole group.

They observed and recorded interactions between the pigs from June to November 2018 and noted aggressive behaviors such as head-knocking, pushing, biting and lifting of the victim pig. The authors watched behavior for three minutes after each aggressive conflict and noted gender, kinship, and age.

The authors observed that both the aggressor and victim showed reconciliation behavior such as nose-to-nose contact, sitting in *physical contact* with one another and resting their head on the other. They found that both the aggressor and the victim initiated reconciliation behaviors equally after fighting. However, they found that the proportion of reconciliations was significantly higher in more distantly related pigs compared to closely related pigs.

The authors propose that pigs may value different relationships based on what they can provide, such as social support. The damage to *social groups* caused by fighting closely-related kin (half or full siblings) may be less because these could be considered as more secure relationships. However, distantly related pigs may be more likely to engage in reconciliation behavior after fighting to ensure they still have *social support* and access to food within the group.

When observing conflict resolution involving a third party pig, the authors noted behavioral differences depending on who the bystander pig approached and engaged with after the fight. If the bystander approached and engaged with the victim, the number of aggressive behaviors did not change, but the mean hourly frequency of anxiety-related behaviors observed in the victim was significantly lowered. Anxiety-related behaviors included...
shaking, scratching, chewing with an empty mouth and yawning. However, if a bystander pig approached the aggressor, the number of aggressive behavior attacks directed towards the victim was significantly reduced.

A higher proportion of bystander pigs intervened if the conflict involved either an aggressor or victim they were closely related to. The authors suggest this indicates that pigs value certain relationships and may support closely-related kin.

The victim pig attempting to approach and engage with a bystander after conflict had no effect on reducing post-conflict anxiety behavior or the likelihood of being attacked again. This may be due to 95.2% (42 cases) of the bystander pigs not reciprocating the union when a victim approached them.

The authors caution that this study involves only one group of adult, domestic pigs, and therefore may not represent all pig groups. Future research could investigate if these conflict-resolution strategies are seen in other situations.

Pigs were found to engage in reconciliation and triadic contacts after conflict, which suggests pigs might possess some socio-emotional regulation abilities to change their own or others' experience in group conflict, according to the authors.


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