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Guest Editorial

Self-harm as ritual: evolutionary perspective

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Summary

Self-harm among young people is rising worldwide and spreads through peer networks. We apply Tinbergen's four questions – a framework from evolutionary biology applicable to all biological phenomena – to argue that group self-harm may be an ancient ritual process that has become dangerous when severed from the cultural structures that once contained it.

Keywords

Transcultural psychiatry; child and adolescent psychiatry; self-harm; anthropology; general adult psychiatry.

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Self-harm among children and adolescents is rising across the world. In England, hospital admissions for self-harm among 13- to 17-year-olds trebled between 2007 and 2018.[1] Similar trends have been reported internationally. Of equal concern is evidence that self-harming behaviour spreads through adolescent peer networks: a Finnish population study found that the number of classmates with a psychiatric diagnosis predicted an increased risk of later diagnosis among peers, particularly for mood, anxiety and eating disorders.[2]

The social dimensions of self-harm have not been entirely neglected. Researchers have documented peer influence mechanisms, social modelling and contagion effects among adolescents who self-injure.[3] Yet this work largely describes how self-harm spreads within peer groups without explaining why it does so with such reliability, or why ritualised group self-harm has appeared independently in cultures across every inhabited continent throughout human history. Social contagion among modern teenagers and the worldwide recurrence of group self-harm across millennia demand a deeper explanation. We believe evolutionary biology can provide one.

In biology, any phenomenon, from the migration of birds to the functioning of the immune system, can be understood more completely by asking four questions first set out by the Nobel laureate Niko Tinbergen.[4] These are not specific to any one domain; they apply to all living organisms and all biological behaviours. They ask: (a) how does the behaviour develop in an individual over its lifetime (ontogeny); (b) what immediate processes cause it to occur and spread (mechanism); (c) what is its evolutionary history across species and cultures (phylogeny); and (d) how, if at all, has it improved survival or reproduction (adaptive significance). The power of this framework is that a complete explanation requires answers at all four levels. We apply each question in turn to self-harm.

Our central hypothesis is as follows. Self-harm begins in individuals as a response to adversity and attachment failure (ontogeny). When it enters a peer group, it becomes a shared behaviour that creates intense social bonds, forming a subculture with its own rituals, language and boundaries (mechanism). This is not a new phenomenon: ritualised group self-harm has arisen independently across diverse cultures throughout history (phylogeny), suggesting that it once served a function. Specifically, we propose that rituals involving shared physical ordeal may have cemented group cohesion during periods of external threat, improving collective survival (adaptive significance). In the modern world, however, a dangerous mismatch has occurred: adolescents form self-harm subcultures without the familial, religious and cultural structures that once gave these rituals meaning and containment, which leads to self-harm without a resolution.

Ontogeny: how does self-harm develop in the individual?

Individuals who repeatedly self-harm have often experienced adverse childhood experiences or psychological trauma. Insecure attachment and difficulties recognising, verbalising and managing one's own emotional states lead to problems with self-regulation. Early life adversity shapes neurodevelopment, and alterations in neural circuits involving the amygdala, insula and prefrontal cortex can lead to increased impulsivity and emotional dysregulation. Adolescents, whose prefrontal cortex is still maturing, are especially vulnerable to impulsive decision-making and risky behaviours.

When a child's cries and words fail to elicit consistent care, the child may learn to communicate distress through physical acts. Crittenden proposes that threats of self-harm compel parents to attend to the child, but at the cost of teaching emotional regulation around the original stressor.[5] Both positive reinforcement (gaining care) and negative reinforcement (ending unbearable feelings by making the emotional pain a physical pain) entrench the behaviour. Self-harm can release endogenous opioids, and repeated intermittent reinforcement can produce a behavioural addiction in which escalating self-injury becomes the default way to manage emotions and signal distress. At this stage, self-harm is a private, individual act. The critical question is what turns it into something social.

Mechanism: how does private self-harm become a group phenomenon?

The bridge from private act to subculture is adolescent social development. As peer attachments take precedence over parental relationships, social inclusion becomes paramount. To maintain friendships, individuals conform to group norms and imitate high-status peers, who do not risk ostracism. Self-harm, by violating adult social norms, simultaneously separates the young person from the family unit and creates a wordless, embodied connection with peers who share the behaviour. Qualitative research with adolescent girls who self-harm reveals that they describe the behaviour in precisely these terms: as a search for meaning, identity and connection with others who understand their pain.[6] For adolescents with insecure attachment and an intense need for closeness, the link between intimacy and self-harm makes rapid social spread unsurprising. Scars become non-verbal markers of belonging and status.

Once self-harm is shared, the features of a subculture emerge: coded language, shared imagery, mutual protection from outsiders

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and escalation as a marker of commitment. The spread is further accelerated by the empathic characteristics of this group – many show emotional dysregulation, heightened empathy and rejection sensitivity, which create intense bonds.

Social media has amplified this process, but it is important to recognise that online spread may differ qualitatively from face-to-face contagion. In-person groups involve embodied empathy, physical witnessing of scars and real social consequences for leaving. Online communities, by contrast, offer anonymity and curated self-presentation; participation can be passive. What they share with in-person groups is the creation of insider language, which is intentionally vague, laden with double meanings accessible only to those who understand the code, and the active maintenance of boundaries between in-group and out-group. Whether online communities generate the same depth of bonding as embodied rituals is an empirical question, but their structural resemblance to subcultures is unmistakable.

Phylogeny: a behaviour that predates the internet

Were group self-harm merely a product of social media, we would not find it throughout human history. Yet ritualised bodily harm marks cultures across every inhabited continent, consistently arising during periods of collective suffering or persecution.[7] In medieval Europe, the Flagellants emerged during the Black Death, engaging in collective self-flagellation amid social upheaval. In some Shi'a communities, the martyrdom of Husayn is commemorated through chest-beating and self-flagellation, binding the group during centuries of sectarian conflict. In the Hindu tradition of Thaipusam, devotees pierce their bodies with metal hooks and skewers, reporting trance-like states and increased generosity afterwards.[8]

These practices differ from adolescent self-harm in important respects: they carry religious meaning, they are supervised by elders, they have defined endpoints and participants are reintegrated into their communities afterwards. They are not expressions of suicidal intent. Yet they share structural features with modern self-harm subcultures that are difficult to dismiss as coincidence: the use of bodily pain to forge group identity, the creation of insider knowledge inaccessible to outsiders, the intensification of in-group loyalty through shared ordeal and their emergence during periods of collective threat. A sceptic might object that any shared hardship – military training, endurance sport – builds group cohesion and ask what is specific about self-harm. The answer may lie in its transgressive nature: deliberately harming one's own body violates a deep social norm, repelling outsiders and making it an especially potent boundary marker. By bonding insiders while repelling outsiders, it is, evolutionarily, a potent mechanism for group formation. Even non-human primates show self-directed harming behaviours under conditions of early life adversity and social stress, suggesting deep biological roots. Anthropological, sociological and cultural accounts already explain such practices in their own terms; we offer the evolutionary reading as complementary to, not a replacement for, them.

Adaptive significance: why does shared ordeal build groups?

Rituals involving physical cost recur across such diverse populations that a common selective pressure seems likely. The most parsimonious explanation is that shared ordeal promotes prosocial behaviour. Xygalatas and colleagues found that participants who endured the painful Kavadi during Thaipusam donated significantly more afterwards than those who did not.[8] This fits a broader interdisciplinary literature showing that synchronised, costly rituals enhance cooperation and trust among non-kin.[9] During periods of famine or persecution, groups whose members shared resources rather than competed for them would have been more likely to survive. Painful rituals also serve as honest signals of commitment: costly to fake, they reliably mark the trustworthy. Where ostracism meant physical danger and reproductive failure, the pressure to join group rituals would have been intense.

The modern mismatch

This brings us to the present. We propose that the formation of self-harm subcultures among modern adolescents, from the Goth movement of the late 20th century to today's online communities, represents the same ancient process of ritual group formation, but operating without the structures that once made it functional. In ancestral and historical contexts, self-harm rituals were embedded within families, religious institutions and ethnic communities. Elders supervised the rituals, cultural meaning framed the pain, the ordeal had a defined endpoint and participants were reintegrated into a wider social world afterwards. Today's self-harm groups consist of adolescents who are isolated from precisely these structures. Without containment, the behaviours escalate. Without reintegration, the group becomes the only source of belonging, and leaving it, which recovery may require, threatens the loss of the young person's entire social world.

This hypothesis generates testable predictions. First, adolescents who self-harm within peer groups should show greater prosocial behaviour towards in-group members and higher initial biological markers of chronic stress compared with adolescents who self-harm alone, reflecting the social bonding and adversity that drive group formation. Second, self-harm subcultures should exhibit the wider features of ritual group formation, for example, distinctive language, dress, symbols and boundary maintenance, rather than just shared self-injurious behaviour. Third, cultures with historical traditions of ritualised self-harm should be those that faced greater external threats, such as persecution or climatic instability.

Recognising the evolutionary dimension of group self-harm has practical implications, although our own framework also requires us to acknowledge the difficulty of translating these ideas into clinical practice. If self-harm functions as an honest signal of commitment, which is effective precisely because it is costly, then superficial substitutes may fail for the very reason that they lack that costliness. Interventions must therefore go beyond offering 'safer alternatives' and instead address the underlying needs that the ritual meets: the need for intense belonging, identity and meaning in the context of adversity.

This requires investment in early intervention that addresses the root causes of adverse childhood experiences, alongside the creation of genuinely demanding, identity-forming experiences for vulnerable young people: mentorship, creative expression, physical challenge and community participation that are effortful and meaningful enough to fulfil the same social function without the harm. Several evidence-based approaches – attachment-informed and DBT-informed interventions, family-based therapy and structured peer support – already target these mechanisms of belonging and dysregulation. Critically, treatment should not aim to sever a young person's peer connections, but to gradually expand their social world so that the self-harm group is no longer their only source of belonging. Blaming social media algorithms is insufficient because

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the internet has not invented this process, although it has stripped away the ancient safeguards that once surrounded it. The clinical task is not simply to stop the behaviour, but to provide something that meets the same deep need.

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