

Susceptibility and Retention in Cults: A Systematic Review of Neurobiological, Psychological, and Group-social Influences

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ABSTRACT

Cults, also referred to as high-demand groups or new religious movements, are social formations characterized by strong behavioral, informational, emotional, and cognitive control, often involving manipulative practices and suppression of individual autonomy. Although the psychological consequences of cult involvement are well documented, broader interdisciplinary explanations remain limited. This systematic review applies Engel's Biopsychosocial (BPS) framework to examine cult membership as an interaction of neurobiological, psychological, and social factors. The review aimed to identify key mechanisms associated with susceptibility to cult involvement and continued membership. Of 97 screened records, 11 studies met the inclusion criteria. Findings identified ten major biopsychosocial factors: neurobiological ($n = 4$), psychological ($n = 3$), and social/group-level factors ($n = 3$). Neurobiological findings were largely derived from general social neuroscience and group behavior studies rather than direct cult-population research, and should therefore be interpreted as associative rather than causal. Across all three domains, social conformity and group cohesion consistently emerged as central mechanisms underlying cultic influence. Overall, current evidence remains limited by small samples, indirect measures, and the scarcity of longitudinal designs. Further empirical research is needed to develop more individualized and evidence-based interventions for those affected by coercive groups.

Keywords: cults; social conformity; group cohesion; neural correlates; biopsychosocial factors

INTRODUCTION

Cults have existed in a highly contested and ambiguous space for centuries, with charismatic leaders captivating human interest towards an unusual way of life (1). Approximately 3% of individuals become involved in a cult at some point in their lives (2). Yet, despite its prevalence, the comprehensive assessment of cult members from an interdisciplinary perspective

remains highly limited due to several reasons: 1) the absence of a universally accepted definition, 2) limited access to psychological and biological data from members, and 3) the deeply context-dependent nature of cult experiences (3). While many enter cults seeking meaning, belonging, or spiritual fulfilment, the consequences of involvement can be severe (4), often resulting in significant psychological and emotional harm for members, including depression, post-traumatic stress disorder, identity erosion, and the development of phobias (5). Yet, there are contrasting findings that dispute the negative impacts of cult involvement, reporting that some members face increased life satisfaction and spiritual fulfilment during their involvement (6). This divergence, in turn, suggests that cult membership and its impact represent highly complex and varied experiences, thus

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Accepted March 9, 2026

<https://doi.org/10.70251/HYJR2348.42115125>

requiring investigations through methods that reflect this complexity. Historically, research into cult membership has been fragmented, largely focused on psychological mechanisms without any biological knowledge implemented when understanding one's susceptibility to cultic influence. Even fewer have integrated a multi-disciplinary approach into studies. To address this gap, this review adapts Engel's Bio-Psycho-Social Model.

Engel's Bio-psycho-social Model (BPS) is a holistic framework that combines biological, psychological, and social factors in a full spectrum. Originally proposed to challenge reductionist biomedical models, the BPS framework emphasizes that complex human behaviors cannot be adequately explained by single-domain factors alone (9). Consequently, the BPS model has been widely adopted across medical, psychiatric, and behavioral sciences as an integrative approach for examining multifactorial phenomena (9). In the context of cult susceptibility and retention, the BPS framework offers a particularly useful analytical lens. Because cult involvement emerges from the interaction of individual vulnerability and group-level influence, frameworks that isolate either psychological pathology or social manipulation alone remain insufficient. By integrating a multifactorial approach, the BPS model enables a more comprehensive understanding of how individuals become vulnerable to recruitment and why they may remain embedded within high-control groups. However, critics have noted that the BPS model can risk becoming an overly broad classification scheme if the boundaries between domains are not clearly defined (10). To address these concerns, the present review does not employ the BPS model as a predictive causal theory but rather, as an analytical framework to classify and synthesize evidence across disciplines.

Accordingly, this review aims to identify the key biopsychosocial mechanisms that contribute to an individual's susceptibility to entering and staying in a cult (10). By doing so, this review highlights the necessity of moving beyond one-dimensional explanations toward a model that accounts for the complex, holistic experiences of individuals within cultic environments. Given the difficulty and controversy in defining "cult" with one definitive criterion, this review did not rely on a strict or singular definition of a cult. Instead, it focuses on longitudinal observations and empirical studies involving widely recognized cults to create a comprehensive, functional definition that captures the above-discussed complexity (37). Specifically, cults are defined here as high-demand, cohesive groups based on

the degree of behavioral, informational, thought, and emotional control they exert, emphasizing manipulative practices and the suppression of individual autonomy (10-11). The terms "cult," "high-demand group," and "new religious movement" are used interchangeably to reflect the broader scope of this inquiry, as they are often treated synonymously in the existing literature (7). However, the terminology remains contested. Literary scholars often prefer the term "new religious movement" to avoid the pejorative implications associated with the word "cult," while clinical and sociological literature commonly uses "high-demand group" to emphasize patterns of psychological and social control rather than religious content. Acknowledging these definitional controversies, the present review uses the term "cult" as a functional descriptor for groups characterized by high levels of behavioral, informational, emotional, and cognitive control.

METHODS AND MATERIAL

Search Strategy

This systematic literature review was conducted from June 2025 to August 2025 to investigate the biopsychosocial factors influencing an individual's entry into and continued involvement in cults. The databases searched included PubMed, ScienceDirect, Google Scholar, and Semantic Scholar, along with the official website of the International Cultic Studies Association (ICSA). During the search process, titles and abstracts of identified records were first screened for potential eligibility, followed by full-text review to determine inclusion in the study.

Selection Criteria

Papers were limited to articles published between 1995 and 2025 and written in English, regardless of the geographical location from which the data was gathered. Papers covered the following categories of participants: former cult or NRM adult participants. Adult participants were the most viable sample population for this review, as they have fully developed cognitive maturity (12) that enables individuals to better represent the psychological effects of cult involvement as more grounded and enduring. In contrast, young children are a much less representative population for generalizing about human behaviors (13). Additionally, only papers which examined either the biological, psychological, or social factors were included in this review. Due to the limitation of accessing current cult members' biological data, some studies

(n=5) linked to social conformity and group cohesion, constructs central to cults, were included.

Exclusion criteria

Papers that involved or integrated mainstream religiosity were excluded from the review as they pose a confusion in clearly defining and distinguishing cults. Additionally, papers that solely focused on the characteristics of charismatic leaders of a cult movement were not included in our review. Articles published before 1995 were excluded due to methodological limitations, including the lack of standardized diagnostic tools, overreliance on anecdotal evidence, and the absence of interdisciplinary models in research design (14). Additionally, studies were excluded if they lacked defined methodology, did not include control or comparison groups, or failed to present a standardized method with well-supported conclusions.

Screenings and Selection

The search initially yielded 84,894 records across the database. These included Google scholar (n=78399), Semantic Scholar (n=1287), PubMed (n=292), and ScienceDirect (n = 3125). The combinations of these search terms are specified in the table below in Table 1. After the exclusion of duplicates or unrelated titles (n=84,797), 97 papers remained for screening. Some databases produced a more exhaustive list of papers, hence why some keywords were searched for less in certain databases.

Search terms included combinations of the following keywords: (“cult” OR “new religious movement” OR “high-demand group”) AND (“neural correlates” OR “neurobiology” OR “psychology” OR “social cohesion” OR “group conformity”). Searches were conducted

independently across each database and results were screened sequentially according to PRISMA 2020 guidelines. Records with irrelevant titles or abstracts were rejected. Forty-four articles were identified as relevant, which were then assessed using the Critical Appraisal Skills Programme guideline (CASP, 2018). Studies were retained only if they met the majority of CASP quality criteria, including clarity of methodology, transparent data collection procedures, and clearly interpretable results. Articles rated as low methodological quality were excluded during full-text screening. Among the full-text articles that were excluded (n = 33), the majority lacked a distinct methodology section and were instead analytical or commentary articles (n = 17). Eight articles referred to mainstream religion instead of cult or New Religious Movements (NRMs). Twenty-five of the excluded articles did not meet the CASP requirement while also not meeting the selection criteria of including an empirical source of findings (n=17), low quality via CASP (n=4), and written before 1995 (n=4) (36). Following this stringent assessment, 11 articles were considered relevant and valid for the present review. Figure 1 below outlines the PRISMA flow diagram of studies included in the present review (n = 11).

RESULTS

Study characteristics

A total of eleven studies met the inclusion criteria. Most of the selected studies were conducted in Europe (n = 7), including two in Spain, one in the United Kingdom, one in the Netherlands, one in Belgium, one in Switzerland, and one in France. The remaining studies were conducted in the United States (n = 3) and China (n = 1). The majority of the studies (n= 9) were published

Table 1. Searched Results from Each Databases.

Semantics Scholar	8 - “Bio-psycho-social factors and Cults” 1000- “Neural correlates OR psychology AND Cult” 279 - “Group cohesion OR social cohesion and Cult OR New Religious Movement”
Google Scholar	1,990- “Bio-psycho-social factors and Cult” 61,000- “Neural correlates OR psychology AND Cult” 17,200- “Social cohesion” OR “group cohesion” OR “social bonding” AND “cult”
Pubmed:	9 - “Social cohesion” OR “group cohesion” OR “social bonding” AND “cult” 283 - “Neural correlates AND Cult”
ScienceDirect:	1,860- “Neural correlates AND Cult” 1265 - “Cult and group cohesion”

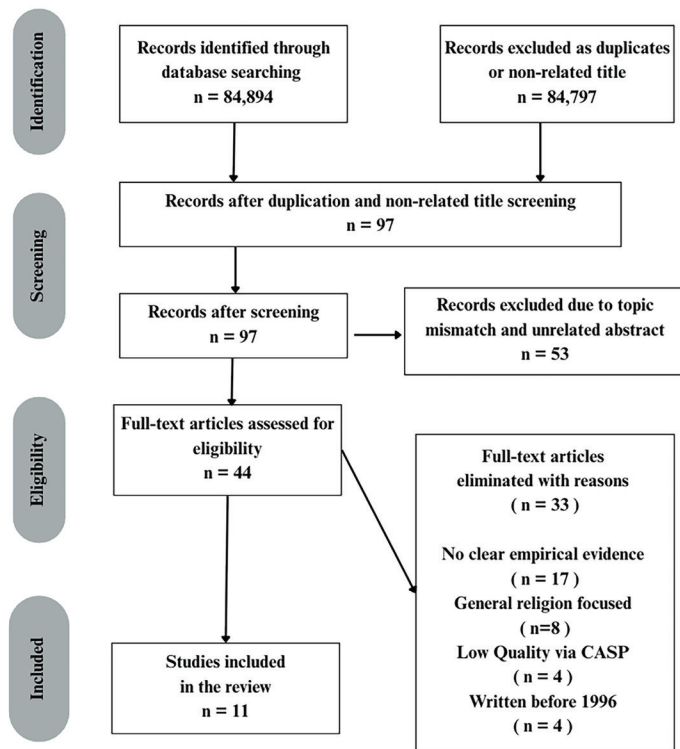


Figure 1. PRISMA flow diagram of the included studies.

between 2005-2015, and the remaining (n=2) were published in the past decade. Research methodology was assessed by cross-sectional questionnaire or survey (n=4), laboratory experiment (n=2), fMRI experiment (n=1), qualitative ethnography(n=1), field study(n=1), integrative review (n=1), and agent-based simulation(n=1). Neurologically tied mechanisms, as well as brain chemicals in the reward system, were identified to be prevalent in forming group conformity and social coherence within cults in five studies. In three studies, cult was found to have a lasting impact on increasing social dependency and decreasing autonomy for those who leave. Psychological factors, more specifically, individuals’ need for cognitive closure (n=1), internal coherence (n=1), and psychiatric traits (n=2) were found to have high relevance in entering a cult. One study revealed neural synchrony’s role in emotional bonding during rituals, correlating with higher group cohesion. Most of the interviewees and participants of surveys were former cult members of widely recognized cult groups while others involved high-demand groups. The BPS mechanisms highlighted, sample and methodological approaches, and relevance to cults of each study were recorded and synthesized manually, then placed into tables to facilitate linking to our original study aims. Table 2 overviews the key findings of 11 studies selected for this.

Table 2. Characteristics of 11 studies describing BPS factors linked with Cult Membership

Reference	BPS Mechanisms involved	Relevance to cult environment	Sample & Methodological notes
(18)	Neurobiological: Physiological co-arousal links performers and related spectators during extreme ritual (Konvalinka et al., 2011)	Synchronous arousal during heightened cult rituals can blur self boundaries, affecting physiological states of participants both intra and interpersonally	n = 30 ECG field study at Spanish fire-walking festival using CRQA evaluating the coupling between participant’s heart rates
(27)	Neurobiological: Oxytocin-mediated trust and bonding	Increased interpersonal trust may enhance deference toward in-group leaders and group norm	Double-blind placebo experiment; n = 128 (64 OT, 64 placebo)
(14)	Neurobiological: Mirror neuron system responsible for discharging execution of actions of imitation while observing action of others.	Neurophysiological properties of mirror neuron create a neural basis of imitation while observing actions of others	fMRI (n=28) & behavioral replication (n=47)
(13)	Neurobiological: “Prediction error” response manifested in activity of the RCZ and the NAc drive adjustments towards group norms and behavior (i.e., social conformity)	Neural mechanisms exposed to repeated norm feedback and reinforcement learning can condition conformity in high-demand groups.	fMRI face-attractiveness paradigm; n=28 scan sample + n=47 behavioural replication

Continued Table 2. Characteristics of 11 studies describing BPS factors linked with Cult Membership

Reference	BPS Mechanisms involved	Relevance to cult environment	Sample & Methodological notes
(23)	Psychological: Reports considerable presence of positive schizophrenic traits in functioning individuals involved in NRM.	Supports the comparable presence of psychiatric symptoms found within individuals prior to joining of a cult	Schizotypal Personality Questionnaire; comparison of NRM members with religious and non-religious controls
(19)	Psychological: Dissociative qualities, cognitive need for closure, depressive tendencies reported by NRM members	NRM members reported to have higher tendencies in cognitive need & higher depression highlights common characteristics to those who enter cultic environments	Cross-sectional survey of n=113 Belgian NRM members compared with the general population
(36)	Psychological: Psychological well-being and psychopathology preceding membership commonly found within NRM membership	Need for closure and depressive tendencies are shown to be preceding elements in joining NRM	Longitudinal psychosocial interviews reported from NRMs (n=51) in Germany
(26)	Psychological: Examines absence or presence of psychopathology in former cult members	While greater number of cult members report a previous history of psychopathology than the normal population, a majority of persons entering a cult do not report any previous psychopathology	Narrative critical review: thematic, literature-based approach using past studies on interviews, clinical reports, and data
(31)	Social/ Group Level: Social-group level of internal coherence in a network of belief is vital in social conformity	Internal coherence of belief systems may enable minority beliefs to spread within tightly connected group	Computational network simulation of belief dynamics; n = 10,000 agents
(22)	Social/ Group Level: Social-group level factors such as family relations and neighborhood correlates individual's susceptibility in entering a cult	Vulnerability factors of cult include anxiety, loneliness, or family relations; there are no significant relations between length of membership & tendency of exiting cult	Retrospective mixed-methods study of former cult members; n = 31; MINI & Mann-Whitney U Test.
(17)	Social/ Group Level: Psychological control plays a critical role in affecting one's decision of leaving a cult.	Strong internal relationships and emotional control may reinforce long-term group retention	Qualitative interviews with former cult members from four groups; n = 7

Synthesis of Findings

This systematic review aimed to provide a holistic perspective on the biopsychosocial factors influencing susceptibility and retention within cults. The findings indicate that both the initiation and duration of cult membership are shaped by a complex interplay of biological, psychological, and social factors, which can act as either vulnerabilities or protective elements. Identifying four biological, three psychological, and three group-social factors (Figure 2), this review brings in the comprehensive interplay of factors that predispose

individuals to enter and remain in cults.

This diagram illustrates the overlap and interconnection between neurobiological, psychological, and social factors contributing to cultic experiences. The visual comparison highlights how these domains interact to influence both susceptibility to and retention within cults.

Neurobiological factors

Mirror neuron systems (MNS) is a network of specialized brain cells in the premotor cortex, parietal, and temporal areas that activate during both action

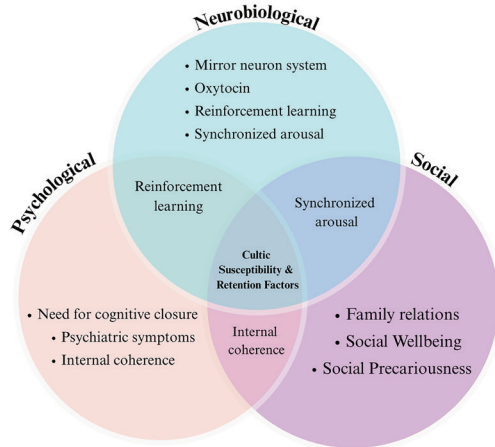


Figure 2. Venn Diagram of Biopsychosocial Mechanisms in Cultic Susceptibility and Retention.

execution and observation (41). Zaki *et al.* reported that the neurophysiological properties of mirror neurons create an ideal neural basis for imitation, as these neurons discharge both during the execution of actions and while observing the actions of others (16). Accordingly, fMRI measurements of the brain's activity have demonstrated that individuals exhibit an automatic tendency to imitate one another during interactions, a phenomenon known as the chameleon effect (16). Conformity was correlated with activity in brain regions such as the rostral cingulate zone and the nucleus accumbens, activated when group feedback differed from individual ratings (14). Over time, such conformity suppresses an individual's critical thinking skills and serves as an inhibition mechanism from leaving a cult (33). Another important biological function of the mirror neuron system is that it facilitates intersubjectivity, allowing interdependence as a form of coupling. While this system generally facilitates empathy and interaction (14), prevalent in daily life, its effects may be amplified within cultic environments. While direct evidence linking mirror neuron activity to cult membership is limited, coerced unification in a cultic environment may potentially make individuals more susceptible to synchronized thinking and reinforcing group identity through shared rituals and mimicry (33).

Oxytocin is a neuropeptide, a type of chemical messenger released by neurons that influences communication between brain cells. It plays a role in regulating social attachment, trust, and bonding. Lei Xu suggested that oxytocin may contribute to social cohesion by increasing individuals' willingness to trust others and align with group opinions (19). Experimental studies

provide supporting evidence for these social effects. For example, Stallen *et al.* reported that oxytocin increases conformity to the perspectives of in-group members (33). Similarly, Kosfeld *et al.* demonstrated that intranasal oxytocin administration enhanced trust in an economic trust game, leading participants to make higher-risk investments with partners (34). Additional experimental research has observed group-specific social effects. In one study, intranasal oxytocin administration in healthy participants was associated with increased in-group favoritism ($\beta = 0.35$, $p < .05$) and decreased evaluations of out-group members ($\beta = -0.25$, $p < 0.05$) (41). Consistent findings across studies suggest that oxytocin has a strong involvement in trust, social alignment, and group-based evaluation processes (20). These findings are primarily derived from controlled laboratory studies using non-clinical participants rather than individuals involved in cult environments. Therefore, they should be interpreted cautiously. Nevertheless, the observed effects on trust, bonding, and in-group preference provide a possible biological mechanism that may be relevant to understanding social cohesion and conformity in highly cohesive groups.

Konvalinka (2011) highlights the physiological effects of synchronized arousal in high-demanding religious rituals (21). To quantify synchrony, the researchers applied Recurrence Quantification Analysis (RQA), a nonlinear time-series method which evaluated features such as recurrence rate (RR) and determinism (DET). The results revealed significantly higher levels of recurrence rate (RR) and determinism (DET) between firewalkers and their emotionally related spectators compared with unrelated observers, indicating how their physiological arousal rose and fell in coordinated rhythms during the ritual. These findings indicate that collective ritual environments can produce measurable physiological alignment across individuals, even among those not directly performing the ritual. In high-demand religious or ideological groups, such synchronized arousal may have important psychological consequences. Through repeated rituals that induce synchronized emotional and physiological states, cults or high-control groups may reinforce collective identity and deepen commitment to the group's belief system, thereby functioning as a potential retention mechanism (6).

Reinforcement Learning – Reinforcement learning is a basic learning process through which individuals adjust their behavior based on feedback from their environment applicable for both neurological links to psychological context. When actions lead to acceptance

of positive outcomes, individuals are more likely to repeat those behaviors within a group. Whereas, when actions result in disapproval or negative outcomes, they are less likely to repeat them. Neuroscientific research has shown that this process is supported by specific brain systems involved in evaluating feedback and adjusting future behavior. Klucharev *et al.* demonstrated that reinforcement learning also plays a central role in social conformity, particularly through activity in the rostral cingulate zone (RCZ) and ventral striatum. When an individual's opinion conflicts with that of the group, the brain generates what is known as a prediction error, a neural signal indicating a mismatch between expected and actual social feedback. The study indicated that prediction error is recorded to have increased RCZ activity and decreased ventral striatal activity. These neural signals drive individuals to adjust their personal judgments to align with group norms, resulting in normative conformity. This potentially suggests that cults or high-demand groups involve reinforcement learning pathways, such as through repeated ideological instillation or education on group norms, from the initial encounter of cult membership.

Psychological Factors

Need for Cognitive Closure – Buxant (2007) developed a psychometric comparison that reveals the cognitive, emotional, and well-being characteristics of members in different Belgian NRMS (9). According to their findings, the need for cognitive closure, one's attraction to a state of rigid order, was a highly salient variable in the personality of NRM members. In Buxant *et al.* (2007), NRM members scored significantly higher on the Need for Cognitive Closure scale compared with control groups ($p < 0.05$), indicating a greater preference for structured and definitive belief systems (23). Thereby, these results show the role of need for cognitive closure in susceptibility of psychological exploitation under cults.

Psychiatric symptoms – Spero observed that many cult-affiliated individuals were already struggling with emotional distress, including symptoms of anxiety, depression, and general unhappiness, before joining their respective groups (35). Similarly, Roussellet's study reveals a high prevalence of psychiatric symptoms, paired with anxiety (51.6%) and mood disorders (45.2%) in members within the year before joining the group. Throughout the membership time, the prevalence of mood disorders tended to go down (45.2%), but increased back up after a year of exiting a cult (54.8%) (25). Moreover, when

comparing cult members to individuals from religious and non-religious groups, Samantha's (23) study reveals that there were several significant correlations between depression, anxiety, and schizotypal traits. Overall, NRM members had higher scores on scales measuring positive schizotypal symptomatology than Christian and nonreligious control groups (27). However, because many of these findings are derived from retrospective interviews and cross-sectional surveys of former members, caution is required as such designs due to shortcomings of retrospective bias.

Internal Coherence – Nathaniel (2016) demonstrates through the Social Knowledge Structure (SKS) model that the internal coherence of belief systems plays a critical role in the survival and exertion of influence by minority groups such as cults (31). The study evaluated the "internal coherence scale" and found that active cult members reported higher coherence ($M = 5.1 \pm 0.8$) than former members ($M = 3.7 \pm 1.0$; $d = 1.57$). Findings suggest that ideological survival depends more on the strength of internal coherence than on the size of the mainstream community. Thus, the stronger internal coherence, the greater the resistance of the cultic belief system against external influence. Moreover, the model shows that 'zealots'—individuals who never alter their beliefs but continuously attempt to convert others—can disrupt mainstream consensus and shift the broader belief system (32).

Group-Social Factors

Within the social domain, some factors appear to influence susceptibility to recruitment, while others primarily affect long-term retention within cultic groups.

Social Well-being – Reported by Bolton, an individual's social wellbeing is an important factor that plays into effect just prior to joining NRM groups. In comparison with the normative data of the general population (9), NRM members were found to report significantly lower well-being in the past and report elevated well-being in the perception of their future after joining NRMs. Ironically, the findings suggest a noticeable effect of elevated well-being reports after joining a cultic group, showing a linear increase in well-being relative to one's level of involvement. Additionally, NRM members were found to hold stronger beliefs in justice, self-control, and luck. Furthermore, they believed less in the randomness of the world (9).

Family relations – Family members who are involved in cults can influence other relatives either through deliberate indoctrination or indirectly by creating

an environment which normalizes cultic beliefs and behaviors (25, 28). Specifically, 32.2% reported a prior social presence of the group in their surroundings, and 19.4% had direct family members involved as the primary reason for entering a cult, indicating that prior exposure through family members increases the likelihood of conversion. As with problematic familial relations, Buxant *et al* (2007) report that about 23% of members had notable conflicts with their family during the year preceding the commitment (23). On the other hand, family members who are non-related to cult recruitment but were supportive and kept in touch are reported to have a greater probability of leaving the cult (29). In this manner, family relations can be either a vulnerability or a protective factor.

Social Precariousness –Social precariousness, state of instability or insecurity in an individual's social conditions, acts as one of the most significant barriers to leaving a cult. Aronoff (2010) showed that former members experienced social difficulties after leaving the group, mostly due to the fear of humiliation by other cult members (30). Furthermore, 12.7% of former cult members who stayed the longest were those who stated social precariousness as the reason for staying within a cult. To support these findings, Coates' study illustrates how internal control is exerted by reinforcing a sense of social precariousness, instilling guilt and fear so that individuals become increasingly dependent on the group for belonging and stability (17). Unlike social well-being or family exposure, which may contribute to initial recruitment, social precariousness appears more closely associated with retention by reinforcing dependence on the group.

DISCUSSION

The reviewed findings of the BPS framework highlight that no single factor is sufficient to explain cult involvement and suggest that cult susceptibility may emerge from interacting feedback loops across biological, psychological, and social domains. This comprehensive approach highlights the complex and multi-faceted nature of cult involvement, offering a perspective that has been largely absent in previous studies.

Cross-domain synthesis

Need for cognitive closure and reinforcement learning

Individuals with a strong need for cognitive closure prefer stable and unambiguous belief systems. When such

individuals encounter a highly structured ideological framework within a cult, reinforcement learning mechanisms, mediated by neural prediction-error signals in the rostral cingulate zone and ventral striatum, may reward conformity to group norms. Over time, repeated alignment with group expectations reduces cognitive uncertainty, thereby strengthening commitment to the belief system.

Oxytocin-mediated bonding and social precariousness

Experimental studies show that baseline difference of oxytocin level in ex-cult members while intranasal oxytocin increased in-group favoritism and out-group derogation. Social precariousness may intensify reliance on these oxytocin-mediated bonds, creating a positive feedback loop of where precarious individuals join groups offering oxytocin mediated-bonding, thereby sustaining group cohesion. Individuals with naturally higher baseline oxytocin might be especially responsive to such rituals. Further empirical research is needed to examine whether oxytocin-related social bonding processes are associated with group cohesion or participation in cult environments.

Psychiatric symptoms and internal coherence

Similarly, psychiatric vulnerabilities may also operate through social conformity mechanisms such as internal coherence. For instance, individuals experiencing depressive or anxiety symptoms may seek environments that provide certainty and belonging. Within cohesive cult environments, internal coherence is reinforced through group rituals, synchronized emotional experiences, and ideological coherence which may temporarily reduce psychological distress and encourage continued membership.

Critical evaluation

While the present review identifies several biopsychosocial factors associated with cult susceptibility and retention, the available evidence remains limited in scope and methodological strength. Most of the included studies rely on small samples, cross-sectional designs, or indirect measures of cult-related phenomena. As a result, many of the identified factors should be interpreted as correlations rather than definitive causal mechanisms.

One limitation concerns the heterogeneity of cult types. Cult encompasses a broad range of groups that varies by cultural context, leadership style, and the characteristics (38). In fact, cults can be grouped into several common types including doomsday, religious,

political, commercial, and more. As such, the core mechanisms driving involvement in doomsday or political cults may differ substantially from those in therapy or commercial cultic groups. Therefore, these subgroups within cult types should be studied separately to be better suited to assessing the distinct characteristics of each group. Another limitation relates to biological evidence. For instance, the data for mirror neuron activity in humans is derived from functional magnetic resonance imaging (fMRI) studies, which measure changes in blood oxygenation (the BOLD signal) rather than direct neuronal firing. Because multiple neural processes can produce similar BOLD responses, it is difficult to determine whether observed activity reflects mirror neuron firing specifically or broader neural networks involved in perception and action understanding. Furthermore, many oxytocin studies rely on experimental data of intranasal oxytocin released under controlled environments, which may not directly translate to the complex social dynamics present in cult environments (40).

Psychological findings are also subject to important methodological constraints. Much of the available data is derived from interviews and cross-sectional surveys conducted with former members of new religious movements. Such approaches introduce the possibility of conversion bias, in which individuals retrospectively reinterpret their prior experiences or overestimate their current well-being following departure from the group (38). These biases complicate attempts to determine whether psychological characteristics such as need for cognitive closure or depressive symptoms preceded cult involvement or emerged as a consequence of it. Longitudinal research designs would therefore be necessary to more accurately track psychological changes before, during, and after cult membership.

Another limitation lies in the lack of cultural specificity of the data sources. Much of the research done on cult behavior and psychological impact is derived from populations in Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies with the majority of selected studies being conducted in Europe ($n = 6$). However, cults are deeply embedded in cultural or social contexts that often reflect these specific environments (38). As such, applying findings derived from culturally specific data samples to non-Western contexts may impose overgeneralization (12). South Korea, for instance, is a country of strong collectivist values, Confucian roots, and post-colonial history which penetrates into one's vulnerability to cultic influence.

Conversion in this context then would be driven more by nationalistic sentiments, group conformity pressures, and culturally reinforced norms, rather than the individualized personality traits often highlighted in Western context (39). These contextual differences call for future studies that incorporate culturally grounded findings across diverse regional settings to better reflect this variability.

Future Research and Clinical Implications

Currently, there is a significant lack in biological or neurological data from active cult members, who are often unreachable, and from former members who may remain distrustful of outsiders (37). This restricts empirical insight into neurobiological correlates of cultic influence. To address this, future research should pursue noninvasive approaches aimed at identifying reliable biomarkers using fMRI or EEG related to conformity, attachment, and group-based identity formation within cultic contexts. Advances in wearable technologies may also allow researchers to measure group synchrony and emotional arousal during collective rituals in more naturalistic settings. From a clinical perspective, interventions for former cult members may benefit from trauma-informed therapy combined with social reintegration programs. In particular, cognitive-behavioural strategies focused on belief restructuring, identity reconstruction, and critical thinking skills may help individuals rebuild autonomy after leaving highly controlling environments. At a broader societal level, increasing awareness of the biopsychosocial dynamics underlying cult recruitment may also contribute to earlier identification of vulnerable individuals and more effective support systems for those affected. Cognitive-behavioral approaches targeting belief restructuring and identity reconstruction may also be particularly beneficial for individuals who previously relied on rigid ideological frameworks for psychological certainty. Finally, recognizing cult involvement as a complex interaction of biological, psychological, and social influences may help shift public and clinical discourse away from stigmatizing narratives that portray cult members as irrational or inherently vulnerable. Instead, a biopsychosocial perspective emphasizes that many of the factors associated with cult involvement—such as the need for belonging, trust in social groups, and susceptibility to social influence—are common aspects of human behavior. Taken together, these considerations reinforce the central aim of this review: to move beyond single-discipline explanations of cult behaviour

and toward a holistic biopsychosocial framework that integrates biological, psychological, and social influences. Such an approach not only advances scientific understanding of cult susceptibility but also provides a foundation for developing more comprehensive prevention and rehabilitation strategies.

CONCLUSION

The present review outlines 10 biopsychosocial factors across three different disciplines – neurobiological, psychological, and group-social factors – and their association with an individual's experience in joining and staying in a cult. Need for cognitive closure, psychiatric symptoms, membership length, family relations, social precariousness are supported by moderate to high certainty evidence to directly or indirectly influence cult membership of an individual. From our review, it also appears that mirror neuron system, oxytocin, synchronized arousal, internal coherence, and reinforcement are also be relevant in understanding one's susceptibility in entering and remaining in cults, though future empirical evidence with a focus on cult samples is needed to further solidify the correlation among these factors. The factors associated with cult membership reflect tendencies that are not abnormal but commonly found in broader human behavior. This highlights the need for a paradigm shift, moving away from the stigmatization of cult members (39) and towards a more compassionate approach that facilitates understanding and rehabilitation. As such, it would be sensible for policymakers and clinical decision-makers to consider a holistic set of factors in understanding one's involvement with cults and to adopt a person-centered intervention model, rather than a condition-centered approach.

FUNDING

The author received no specific funding for this work.

CONFLICT OF INTEREST

The author declares no conflict of interest related to this work.

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