ETHNOBIOLOGY LETTERS

Research Communications

Potential Interpersonal Applications of Cacao: A Review and Call for Further Research

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Abstract This paper takes an ethnobiological approach to investigate historic and contemporary uses of cacao and its potential interpersonal applications. A literature review summarized past research conducted about the health benefits of cacao, Indigenous and ritual plant uses, and psychoactive effects. Minimal research has been completed on the interpersonal implications of cacao consumption. People globally who facilitate and attend cacao ceremonies claim that cacao's psychoactive effects lead, in many users, to euphoria and emotional openness. They assert that these effects make cacao an excellent addition to reflection and connection-building activities done in cacao ceremonies; however, claims need to be researched and field-tested. Surveys were conducted with eleven cacao ceremony practitioners, who shared their insights into cacao's effects on participants. Cacao use and potential cultural appropriation were analyzed, as well as popular claims about the effects of chemical compounds in cacao. Additional research is needed to further explore the potential interpersonal effects of cacao use. If validated, cacao could prove to be a useful complement to a range of interpersonal activities, from corporate team building to community building, to applications for romantic relationships or even therapy.

Received September 9, 2024
Accepted January 14, 2026
Published March 20, 2026

OPEN ACCESS
DOI 10.14237/ebl.17.1.2026.1904

Keywords Cacao ceremony, Psychoactive, Biocultural, Interpersonal, Ritual uses, Indigenous uses

Introduction

Despite extensive research on cacao's health benefits, Indigenous ritual uses, and mood-altering properties, its role in contemporary interpersonal contexts remains largely unexplored. Cacao is widely recognized for its mood-enhancing effects, with some suggesting that specific doses may increase emotional openness and euphoria. These effects have contributed to the growing popularity of cacao ceremonies, during which participants often report feelings of deepened connection and mutual vulnerability. However, these claims remain largely unverified in the scientific literature.

In this paper, we aim to highlight this gap in the research on interpersonal applications of cacao. Using an ethnobiological approach, applying the study of the relationships between people and cacao over various temporal and geographic contexts, we present a literature review of cacao's historical and cultural significance, highlighting its ritual use by Mesoamerican civilizations and its status as a sacred substance, as well as contemporary research on mood effects. The review examines cacao's documented psychoactive properties, focusing on chemical compounds thought to contribute to mood elevation and cognitive enhancement. However, existing literature does not adequately address the influence of cacao on interpersonal dynamics, especially in contemporary group settings.

Preliminary results of surveys with cacao ceremony facilitators are presented within the context of existing literature on cacao and psychoactive substances, with attention to issues of cultural appropriation and unsubstantiated scientific claims. The implications of these findings are considered across various social settings. Given the limited scope

of preliminary data, we highlight the need for further investigation, in controlled settings, into the potential interpersonal applications of cacao consumption. Ultimately, this contribution lays the groundwork for future research into cacao's potential as a tool for enhancing interpersonal connection, with possible applications in social, therapeutic, and organizational contexts.

Historical Uses of Cacao

Humans have been ingesting entheogens—chemical substances that induce non-ordinary states of consciousness, typically of plant origin—for thousands of years or longer (Winkelman 2019). The pursuit of altered states of consciousness and spiritual journeys has led humans to eat, smoke, or imbibe many plants, ranging from cycads (Bonta et al. 2023) to peyote (Basset 2016). Cacao is one such plant that has played a role in ritual and symbolic practices.

Cacao has been consumed in Latin America for centuries (Young 2007). Research published in 2018 rewrote cacao's origin story, suggesting that humans have been consuming cacao since as early as 3500 BCE in an area that is now Ecuador, where researchers unearthed traces of theobromine and other substances associated with cacao on the surfaces of ceramic and stone artifacts (Zarrillo et al. 2018). Between about 1850 BCE and 1050 BCE, the cacao plant (*Theobroma cacao*) was introduced to and cultivated by Mesoamericans (Díaz-Valderrama et al. 2020). Spanish conquistadors later brought cacao and chocolate to Europe in the early sixteenth century (Squicciarini and Swinnen 2016).

Cacao has held a central role in Mesoamerica since ancient times and was used in a range of life cycle and religious rituals, as a currency, and in mythology (Norton 2008). Many ceremonial uses of cacao were important for connecting people to each other and to spiritual forces. For example, an ancient Mayan naming ritual involved presenting cacao to the newly named baby (Prufer and Hurst 2007), and it was commonly used as an offering to gods and in marriage ceremonies (Norton 2008). These evidence the use of cacao to help facilitate both social and divine connections. Similarly, in various regions of Guatemala today, locals report giving cacao as a gift for significant life events such as childbirth, to breastfeeding mothers, during holidays, and as a traditional offering from men to the families of a woman they wish to marry (McNeil 2006).

Cacao has been prepared in a variety of ways in multiple places in different time periods. For example, it has been made into a fermented product in parts of South America, Guatemala, and Honduras (Joyce 2010), a frothed beverage consumed by the early Maya and Aztecs, and a drink mixed with other ingredients such as maize, chili, and/or honey drunk by the Maya (Hurst et al. 2002). This diversity of preparation styles is a reflection of cacao's adaptability across cultures. Throughout Mesoamerica, cacao continues to play an important role in traditional cultures, from the northernmost regions, such as the Purépecha of northwestern Michoacán, across to the Huastecs of the Gulf Coast, throughout central Mexico, and all lowland and highland Maya, the Mazatecs of western Mexico, the Zapotec from Tehuantepec, Mexico, throughout Central America, as far south as Panama (Coe and Coe 1996; LeCount 2001; Prufer and Hurst 2007).

There is some evidence to suggest that cacao was associated with positive changes in mood well before documentation in scientific research. The Aztecs gave cacao to human sacrificial victims in order to comfort them (Dillinger et al. 2000) as well as make them joyful until they died, possibly in combination with other unnamed substances (Coe and Coe 1996; Versényi 1989). This use is particularly relevant to current interest in cacao's mood-altering effects. Over 350 years ago, plant medicine author William Hughes (1672:148) wrote that "[Chocolate] revives drooping spirits and cheers those ready to faint, expelling sorrow, trouble, care and all perturbations of the mind." Similarly, Quelus (1730:45) documented that chocolate was "proper to repair exhausted spirits and decayed strength," among other benefits.

Spanish physicians in Mexico treated patients with different cacao blends in accordance with their temperaments or humors; for example, lukewarm cacao beverages with anise were given to melancholy patients, extra-hot cacao drinks with spice were given to the phlegmatic, cacao without the cornflour that was typically added was given to sanguine patients, and the choleric were served mild cacao closer to room temperature (Graziano 1998). This pairing of cacao-based beverages with the temperament of the patient hints at a perceived ability of cacao to alter or balance mood. It also evidences early European attempts to medicalize cacao's effects, paralleling modern attempts to link it to specific chemical compounds.

Aside from cacao's early applications for mood effects, historical evidence further supports the connection between cacao's psychoactive properties and role in social bonding activities. In Mesoamerican merchant culture, cacao concoctions were central to multi-day celebrations, served alongside hallucinogenic mushrooms, and used to sustain all-night communal dancing marathons (Norton 2008). Cacao was believed to be uplifting, cheering, rejuvenating, and invigorating, as well as able to unleash creative energy, and to "induce a mood of stimulating pleasure that was thought to match the kind of consciousness enjoyed by joyful gods" (Norton 2008:24). The Mexica (Aztecs) explicitly recognized cacao's mood-altering social benefits, as captured in their saying declaring that "[cacao] gladdens one, refreshes one, consoles one, exhilarates one" (Norton 2008:18). These qualities are part of what made cacao drinks not only pleasurable but also a social lubricant and vital medium for consecrating social bonds (Norton 2008).

Beyond individual effects, in Mesoamerica, cacao served a bonding function—it "connected the individual body to the social body" and "humanity to divinity" (Norton 2008:174). People actively sought it out to "lift spirits, soothe agitated nerves, rouse a tired body, and summon creative energies" (Norton 2008:174) and it frequently appeared in artistic depictions of interpersonal connection activities including socializing and celebration ceremonies. This historical pattern of using cacao for its effects in social and ceremonial contexts provides cultural precedent for investigations into cacao's potential interpersonal applications.

The contemporary use of the term "cacao ceremony" was coined in the 1990s by an expatriate drinking cacao with Keith Wilson, an American visitor to Lake Atitlán, Guatemala. Wilson lived among Indigenous people and conducted intensive exploration of ritual uses of cacao (Burby 2021). He was allegedly the first person to popularize ritual cacao use among foreign visitors from the Global North. Wilson's own account blends mythology with narrative; he claimed that the spirit of cacao contacted him while in meditation near Lake Atitlán, and that she asked him to research Indigenous uses and production of cacao to introduce its medicinal uses and message of planetary harmony on a wider scale. After Wilson's investigation into the history of cacao in Mesoamerica starting around 1997, he began making and serving cacao beverages to fellow expats on his porch in Guatemala (Burby 2021). One of them coined a now-popular term by referring to these gatherings as cacao ceremonies (Burby 2021). However, it should be noted that the term cacao ceremony is sometimes used to refer to Indigenous practices, as well. In recent years, cacao ceremonies have developed into a range of different forms.

Psychoactive and Mood Effects of Cacao

While some contemporary cacao ceremonies claim that mood effects translate into enhanced interpersonal connection, this relationship has not yet been formally studied. It is possible that if cacao acts as a stimulant and alters one's mood, it may also alter behavior and perception within interpersonal settings, including emotional openness.

Cacao contains over 500 different chemical compounds, many of which are psychoactive (Powis et al. 2011), and work in synergy to produce a unique psycho-stimulating and mood-altering effect. Tuenter et al. (2018) noted that although chocolate and cacao have reputations as being mood-altering substances, the mechanism(s) of action and the validity of these claims remain unclear despite a multitude of clinical trials with chocolate and cacao. The authors also scrutinized existing research by highlighting the fact that there is a high degree of variation in the chemical composition of various cocoa and chocolate products on the market; this variation stems from differences in geographical origin, genotype, fermentation, and processing.

A wide body of literature exists documenting cacao's psychoactive properties and effects. Methylxanthines, such as caffeine and theobromine, are often cited as the primary psychoactive components in cacao; they act on adenosine receptors to produce a psycho-stimulant effect, enhancing concentration, arousal, and mood. However, several studies challenge this emphasis on methylxanthines. Most notably, findings by researchers experimenting with the polyphenols in cacao challenged the assumption that methylxanthines are the main active components (Angeles-Martin et al. 2020; Barrera-Reyes et al. 2020; Pase et al. 2013; Sasaki et al. 2024).

For example, Barrera-Reyes and colleagues (2020) analyzed studies on the usage of cacao and found that participants' memories and executive functions improved after ingesting between 500 and 750 mg of cocoa polyphenols per day. Another study, by Angeles

-Martin and colleagues (2020) investigated the role of cocoa flavanols on cognitive performance in young adults. The authors found that intake of these compounds was associated with better cognitive performance and neuroplasticity, increased cerebral blood flow or cerebral blood oxygenation, and higher levels of neurotrophins. The increases in cerebral blood flow and oxygenation were acute, whereas improvements in cognitive performance appeared only with regular intake of cacao. Additionally, Sasaki et al. (2024) observed a correlation between polyphenol-rich dark chocolate and improved brain function during cognitive tasks when observed 25 and 50 minutes after ingestion.

In contrast to the studies above, Pase and colleagues (2013) observed mood effects, but found no significant cognitive improvements following polyphenol consumption. Participants consumed dark chocolate beverages containing either 0 mg, 250 mg, or 500 mg of polyphenols daily for 30 days. While they reported feeling calmer and more content, they did not rate their cognitive performance as having improved. This stands in opposition to the findings of Angeles-Martin et al. (2020), Barrera-Reyes et al. (2020), and Sasaki et al. (2024), who all reported cognitive benefits associated with polyphenol intake.

Scholey et al. (2010) conducted a study comparing the effects of three cacao drinks with low, medium, and high levels of cocoa flavanols but similar levels of both caffeine and theobromine. The medium and high-dosed drinks were shown to acutely reduce mental fatigue and improve performance during high-demand cognitive processes, with the medium dose yielding the most apparent immediate benefits. In this study, the authors attributed the effects to polyphenols, adding to the growing body of evidence that polyphenols, not methylxanthines, drive cacao's mood and cognitive effects.

Contrastingly, Tuenter et al. (2018) suggested that the role of another class of compounds, tetrahydro-quinoline alkaloids (especially salsolinol) may have been overlooked. Salsolinol is derived from dopamine and binds to the dopamine D3-receptor, which is involved in the brain's reward system. More research is needed to fully understand the magnitude and significance of salsolinol in cacao's effect on mood.

Macht and Dettmer (2006) and Macht and Mueller (2007) conducted studies on mood and chocolate; their findings also suggested that chocolate induced an elevated mood or reduced negative mood. Based on the reviewed studies, cacao consumption appears to have both immediate and long-term benefits for cognition and mood; however, interpersonal effects and their possible links to cognition impacts have not been fully studied.

There are at least two compounds often mentioned during cacao ceremonies and in blogs as playing a major role in cacao's mood-boosting effects that are unlikely to play as big a role as popularly assumed. One of these unsubstantiated claims is about anandamide, an endocannabinoid known to induce a feeling of bliss. One cacao company (Nibbed Cacao 2022), for example, features anandamide on its website under a list of mood-boosting components in cacao, associating it with euphoria, happiness, and wellbeing. However, anandamide is only present in small quantities in cacao, and it is unstable, making it unlikely to have a strong effect on mood (Tuenter et al. 2018). Further research is needed regarding how anandamide interacts with and may be affected by other chemical components in cacao. Similarly, phenylethylamine is often talked about in such circles because of its role in attraction and reputation as a "love drug." While it has been cited as an active component in cacao (Nibbed Cacao 2022) that is thought to be partially responsible for the "high" some people feel after consuming large amounts of cacao or chocolate, phenylethylamine is only present in a very small amount in cacao and does not reach the brain after oral intake (Tuenter et al. 2018). Specific biochemical contributions of cacao to mood remain to be clarified and fully understood.

If consuming cacao does indeed have positive implications for interpersonal settings such as cacao ceremonies, it is possible that the effects on cognition may make it easier for interlocutors to listen to one another due to improved attention span, which could help to facilitate connection-building. Similarly, cacao's positive effects on mood could contribute to social bonding.

Methods

We used an ethnobiological mixed methods approach (Creswell 2003) for this study about emerging functional uses of cacao-based events, including preliminary participant observation of cacao ceremonies and surveys of cacao ceremony facilitators in the Americas, Europe, North Africa, and Asia. Our research questions were the following: 1) What are cacao's mood and cognitive effects? 2) How do cacao's mood effects relate to interpersonal

connections because of cacao ceremonies? To investigate these questions, we began with a narrative literature review (Baker 2016) to contextualize contemporary ceremonial uses within both scientific and ethnographic understandings of cacao.

From May to July 2024, we reached out to 30 practitioners of cacao ceremonies around the world. Respondents were sought via conscious community and local event-related Facebook and Whatsapp groups and snowball sampling of recommended contacts. We received 11 responses. Each person was asked the following survey questions:

1. How is the cacao you offer prepared? Is it boiled? Are spices used?
2. Has the cacao undergone stone grinding/ other processing; is it raw?
3. How is the cacao ceremony structured; what kinds of activities are there?
4. What is the cost of the ceremony?
5. What effects have ceremonies had on the participants?

The survey results were analyzed by summarizing and coding quantitative data and by conducting a thematic analysis of qualitative results, then synthesizing the findings around topics and themes.

Preliminary Results: Cacao Ceremony Observations and Facilitators Survey

During field research from 2019–2024, the first author attended ten cacao ceremonies in Mexico, Nicaragua, and Thailand. Ceremonies were chosen opportunistically based on the availability of the researcher to attend in person. Observations and reflections from the ceremonies were recorded as field notes in a notebook to look for patterns.

Two general types of events were observed, which sometimes overlapped. In one type of cacao ceremony, the primary focus was on learning about the various uses of cacao, especially in Mesoamerican culture, and on connecting to, honoring, and gaining wisdom from the cacao itself. Participants were often asked to meditate, to connect to the earth or the land around them, and/or to connect to the spirit of the cacao. The other type of ceremony observed was more interpersonal in focus; the main activities involved pairing up with other attendees and doing exercises related to connection and vulnerability. In this type of interpersonal connection-based cacao ceremony, participants were often asked to maintain silent eye contact with a partner for an extended period of time and to share their answers to self-reflective and often personal questions given by the facilitator after being asked to maintain confidentiality. In particular, this second type of ceremony is done based on the premise that cacao has "heart-opening" properties (Burby 2021), a phrase that is frequently repeated at cacao ceremonies and is sometimes linked to claims of cacao-induced emotional openness. This type of ceremony was the primary focus of our research due to the possible interpersonal benefits of the ceremony.

Both types of ceremonies share some common elements; both involve participants sitting in a circle, the cultivation of a ritual atmosphere, and some reference to Indigenous and/or psychoactive uses of cacao. Many non-Indigenous facilitators operate under the assumption that cacao consumption helps to bring about a mentally and emotionally grounded state in which healing and transformation can take place (Burby 2021). These shared characteristics informed the development of our survey questions, particularly those concerning ceremonial structure and effects on participants.

Seven of the ten cacao ceremonies attended took place at two different eco-hostels on Ometepe Island in Nicaragua, one on the lakeshore in Bacalar, Mexico, one at Gaia Ashram in Ban That, Thailand, and one at a venue in Chiang Mai, Thailand. The ceremonies in Nicaragua were highly interpersonal, emphasizing self-reflection, connection, and sharing. They often included intense eye-gazing and other rituals designed to foster deep connection before transitioning into paired discussions. The Bacalar ceremony focused more on educating participants about Indigenous uses of cacao, with a portion dedicated to reflection and interpersonal connection. In Thailand, the ceremony at Gaia Ashram was brief and loosely structured, centering on drinking cacao together in a meditative setting before an ecstatic dance. The ceremony in Chiang Mai combined teachings on Indigenous cacao traditions with vocal exercises tied to the seven chakras, culminating in a sharing circle. Some of the locations were centers of New Age spirituality, such as Ometepe Island and Bacalar. The ceremonies were marketed to tourists or residents, sometimes facilitated by Indigenous people and sometimes by foreigners, and tended not to attract Indigenous participants. Ceremony facilitators were observed linking cacao's psychoactive properties to its interpersonal applications.

Survey results regarding the cacao ceremonies varied (Table 1). One survey respondent does not add spices to their cacao, while nine do, and one offers spices on the side. The ceremony cost varied widely, with the least expensive ceremony priced at the equivalent of $5 USD and the most expensive priced at $70 USD. Two out of eleven respondents boiled their cacao, while nine did not. Eight respondents stated that the cacao they use is raw. However, if cacao is boiled, it is no longer raw, so this question may need further clarification. Additionally, one respondent said that the cacao was "raw and stone ground." One respondent explained that before it reaches her, the cacao is fermented, lightly roasted, peeled, and milled, and that the heat from the milling process is enough to melt the cacao solids and liquids together. She brought up an important point, that "there is discussion about what constitutes 'raw' because of the fermentation process and the temperatures involved." She suggested that raw is not the correct term and that "pure, natural, or minimally processed is better."

Regarding our question about ceremony structure, many respondents do not always follow the same structure or host the same activities from one ceremony to the next. Six respondents sometimes incorporated music—ecstatic dance, kirtan music, singing, drumming, and chanting were mentioned. Five respondents sometimes used interpersonal connection activities, such as authentic bonding games or a sharing circle. Five also mentioned including meditation in their cacao ceremonies.

Notably, two ceremonies were hosted by Indigenous facilitators who shared their cultural traditions in the ceremonies they facilitated. For example, one explained that the ceremony structure involved meditation, the burning of palo santo (*Bursera graveolens*) by a shaman, reciting ancient prayers in Kaqchikel (a Mayan language), and then serving the cacao in wooden or clay vessels; regarding this step, our key informant said that they give "positive energy to every cup." Next, Mayan mantras were used to stimulate the cacao to work, while palo santo was burnt again. This respondent, an Indigenous Guatemalan who was trained by Mayan elders to conduct the ceremony, noted the importance of recognizing that "each culture [has] different spirits." He mentioned that "the Mayan ceremonies use mother earth spirits and father time," and that "we don't mix [Peruvian] knowledge with Mexican, because the spirits collide, and nothing good comes from that." He also explained that the mantras that are sung help in recalling memories, and that the cacao ceremony he does is in service of remembering one's roots and ancestry. Importantly, he also shared that "as Mayans, we don't like to do it so often because people misinterpreted the meaning; they think it is just about [good-tasting] cacao when it has a deeper meaning along with old traditions…Now, anyone [can] 'do' this ceremony when actually it is a cacao tasting, or they are not authorized by Indigenous people to perform it." When questioned about whether it is offensive to Indigenous people to hold events that use cacao for psychoactive and mood -boosting properties, he suggested that "the issue is when people call it a ceremony, because that evokes [Indigenous] traditions."

In response to the question "What effects have ceremonies had on the participants?", respondents gave a variety of answers that included mood-boosting and energizing effects, emotional openness, and catharsis. The idea of connection to self was the most frequently mentioned theme. The responses were grouped into topics and used to create a word cloud (Figure 1). The Indigenous respondent listed dizziness, fainting, expressing emotions (including negative emotions such as anger), a pleasant feeling, a feeling of peace, a burst of energy, laughter, and in some cases even lucid dreams and astral projection. He stated that "it really depends on the intention" of each participant. Five of nine respondents mentioned the term 'heart' when writing about the effects. One of them stated that "cacao is a heart-opening medicine" and "stimulates the heart and provides an uplifting feeling," while another said that participants "feel more connected to their [bodies] and emotions, more sensitive and open-hearted." The facilitator who combined cacao with a sharing circle said that the "most noticeable effect is of people feeling that they have been able to open up and release emotions that had maybe been stuck for a while," that "tears come often; some people can cry a lot," and also that "cacao can give people what they need as in an adaptogenic way it can energize and also relax." Another mentioned "releasing emotional stress."

While cacao event operators have observed some perceived benefits from their events, further research is needed to systematically document these effects and rule out potential placebo effects. Respondent mentions of emotional openness, elevated mood, and

Table 1 Results of Interviews with Cacao Ceremony Facilitators.

Country of Ceremony	Cacao Preparation Method	Ceremony Elements	Ceremony Cost (US dollars)
Nicaragua and USA	Stone ground, fermented, with spices. Not boiled. Spring water is used and blended with a blender.	Invocation, activities promoting vulnerability, belonging, sharing, verbal expression. Movement, eye contact, shared silence, gratitude prayer. Sometimes writing.	$15-$30
Thailand, Scotland, others	Finely cut, then mixed into a thick paste and slowly a little spring water added. Simmered, never boiled.	Womb-healing ceremonies with women, emotional release, somatics, intention-setting, sharing circle, meditation, voice, movement and stillness.	$70
Egypt and Guatemala	Melted in hot water, never boiled. With spices.	Meditation, burn palo santo, prayers in Kaqchikel language, positive energy given to every cup. Mayan mantras.	$60
Mexico	Boiled, no spices.	Marijuana, drums, songs, and chanting, gong, didgeridoo.	$5-$13
Thailand	Boiled, with spices.	Sometimes ecstatic dance, sometimes meditation.	$8-$9
England	Not boiled. Chopped and melted in water, whisked. No spices mixed in, but spices offered.	Shamanic approach and drumming, sacred space, meditation around a fire, sharing circle.	Sliding scale $13–$33
Thailand	Melted in a pot with spices.	Introduction to cacao, guided meditation, intention-setting, celebration through songs, dancing, and/or breathwork.	No response
Thailand	Melted in hot water with spices.	Kirtan singing and chanting, and music.	$15
Nicaragua	Not boiled. Melted in coconut milk or water with spices.	Two ceremony types - one is combined with ecstatic dance, the other focuses on connection, authentic bonding games, sometimes breathwork.	$15
Guatemala	Raw cacao mixed with warm water, not boiled, with spices.	Fire, explanation of Mayan culture and Nahual (a being) of that day.	$32
Nicaragua	The cacao is roasted, peeled, and stone ground. Not boiled.	Depends on the facilitator.	$10

"heart-opening" may support assumptions about cacao's interpersonal influence, while reports of negative emotions like anger actually challenge the assumption that cacao could support interpersonal connection. Given the small sample size, our preliminary dataset does not provide sufficient evidence for or against the possible interpersonal connections, which supports our call here for further research. In particular, researchers should investigate the possible links between cacao consumption, emotional openness, and interpersonal connection.

Discussion and Conclusion

Using an ethnobiological approach, our mixed methods research found that cacao consumption in ceremonial environments is sometimes perceived as helpful in connecting to oneself and others as well as in emotional release. In addition, there are at least two overarching factors to consider when analyzing cacao ceremonies: cultural appropriation and misinformation regarding which compounds in cacao produce noticeable psychoactive effects.

If cacao has the potential to induce feelings of euphoria, bliss, and, potentially, interpersonal openness, it follows that cacao can contribute to the creation of an environment ripe for interpersonal connection. However, this conceptual leap has not yet been rigorously investigated; it is possible that the interpersonal benefits participants gain from cacao

Figure 1 Themes of effects of ceremonies on participants.

ceremonies could be due entirely or in part to the ritual environment that is created, the structure of the events, the skill of the facilitator, and/or a placebo effect as a result of the suggestion that they will experience or feel certain things. The placebo effect is a well-documented phenomenon within many settings, including plant medicine and ritual contexts, wherein factors such as setting can influence participants in ways that are subsequently misattributed to the pharmacological action of the substance itself. For instance, Uthaug and colleagues (2021) examined the role of process and setting in ayahuasca ceremonies by administering ayahuasca to one group and a placebo to another within an identical ceremonial environment. Their findings indicated that symptoms of anxiety, depression, and stress decreased in both groups following the ceremonies, underscoring the impact of non-pharmacological factors in these settings.

It bears mentioning that in many cases, non-Indigenous use of cacao in "cacao ceremonies" is situated within a broader context of appropriation of the culture, religion, and traditions accompanying Latin American entheogen use. Heinonen (2023) and Hill (2008) used the term "mystical tourists" to describe tourists in Latin America whose travels are oriented toward the pursuit of meaningful spiritual experiences and who are appropriating and consuming elements of Indigenous South and Central American religions in the process. These studies of mystical tourism are consistent with some of our observations of cacao ceremonies, in which some facilitators evoked elements of Indigenous traditions without clear demonstration or admission of having been trained and given permission to conduct ceremonies involving Indigenous rituals. Some ceremonies were hosted by Indigenous facilitators, and some were also hosted by non-Indigenous people who claimed to have been trained and given permission to facilitate by Indigenous facilitators. This raises the question of who is qualified or authorized to give permission, however. Additionally, some

ceremonies simply did not involve or claim to involve Indigenous rituals at all.

It is important that facilitators and participants in cacao ceremonies view the practice with a critical lens *vis a vis* mystical tourism. Mystical tourism often involves religious appropriation, which can "depend on and contribute to the oppression and marginalization of religious communities and individuals;" it happens "when individuals adopt religious practices without committing to religious doctrines, ethical values, systems of authority, or institutions, in ways that exacerbate existing systems of structural injustice" (Bucar 2022:2-3). The popularity of ayahuasca (a blend of two plants—*Banisteriopsis caapi* and *Psychotria viridis*) among mystical tourists is one example. Frequently, ayahuasca is appropriated by foreign, white entrepreneurs who serve it to non-Indigenous spiritual seekers in service of their own capital gain without involving Indigenous people in the tourism or ceremony operation (Heinonen 2023). Additionally, the boom in popularity has led to overharvesting of the materials needed to make ayahuasca (Harms 2021).

Peyote (*Lophophora williamsii*), another popular plant for psychedelic tourism and New Age tourists (Basset 2016; Copes et al. 2025), is also shrinking in supply as a result of overharvesting in Texas and Mexico (Muneta 2020). Peyote's overharvesting is also linked to claims of cultural appropriation by non-Indigenous recreational or casual users and facilitators who engage in commercialization and commodification of peyote as well as unauthorized ceremonies that invoke false claims of spiritual authority (Youvan 2025). Like ayahuasca and peyote ceremonies that appeal to white spiritual seekers, cacao ceremonies can involve cultural appropriation. Such ceremonies may include misrepresentation of traditional rituals, exploit references to Indigenous spirituality for profit, or contain other culturally exploitative elements, and should be avoided.

Heinonen (2023) reported that cacao ceremonies in Finland are sometimes offered for hundreds of Euros per participant, and that they highlight elements such as the "spirit of cacao" while choosing not to make participants aware of other important elements of Indigenous history with cacao. Some of Heinonen's interview subjects reported singing in various languages during cacao ceremonies; one gave an anecdote involving a song in Spanish, while also maintaining that it is also acceptable to sing mantras to Shiva, a Hindu God. In other words, cacao ceremonies often involve facilitators selecting elements of Indigenous practices from around the world for their own use, while dismissing contextual elements that do not fit the intended narrative of spirituality.

Not all hybridized or New Age ceremonial expressions are inherently exploitative, however. For example, a non-Indigenous facilitator who does not use the term "ceremony" for an interpersonal connection-building event involving cacao may respectfully summarize Indigenous uses of cacao for participants to give background information on cacao's origins as an entheogen. Another event leader might set the context by telling a carefully researched traditional folktale involving cacao. Cross-cultural ritual and information exchange is extremely complex and not inherently harmful. It should be done with the utmost care and caution to avoid cultural appropriation and instead focus on appreciation of cultural linkages and context.

There are some Indigenous groups and individuals who willingly share their cacao rituals with foreign visitors. Visitors can undertake training with Indigenous facilitators that allows them to share Indigenous rituals involving cacao. In some cases, these offerings may reflect an authentic exchange of culture, while in other cases they may have been developed and tailored as a business practice to suit paying tourists. Genuine Indigenous rituals may also be shared with paying foreign tourists as a cultural exchange as well as a commodity paid for by visitors.

The claims regarding effects of cacao ceremonies require further study. We hypothesize reasons why anandamide and phenylethylamine have gained traction as popular chemicals to misleadingly cite in cacao ceremonies. Anandamide has been nicknamed "the bliss molecule" ('ananda' means bliss in Sanskrit), while phenylethylamine is often referenced in cacao ceremonies as a chemical that is released when people fall in love. These associations could contribute to the marketability of cacao and cacao ceremonies, causing unsubstantiated claims to gain traction. These characterizations lend themselves well to advertising and participant engagement, whereas more obscure terms like methylxanthines and polyphenols may not produce the same intrigue.

Where cacao is concerned, many distributors of "ceremonial cacao", which is an unprocessed or less processed cacao product that is used in cacao

ceremonies, are not Indigenous or even from Latin America. As this study's results documented, there are also a range of uses of terms, and variation around what constitutes "minimally processed" or "unprocessed" cacao. The division between cacao and chocolate is not always clearly denoted, with researchers like Norton (2008) referring to cacao-based historical concoctions as "chocolate" as well. Similarly, there is no agreed-upon industrial standard regarding what constitutes a "ceremonial dose"—an amount thought to induce noticeable psychoactive effects—of cacao. Based on our field research, many cacao providers and ceremony operators cite amounts between 40–50 grams, though some recommend 30–40 grams or even as few as 25 grams. Also, processing of cacao does not result in standard amounts of chemical components. Levels of the many chemical compounds in cacao can vary by preparation, batch, growing location, fermentation time, processing, and other factors, making the levels of various compounds in each "dose" difficult to control or standardize.

While this study has contributed a synthesis of the existing literature and a small body of preliminary research including a survey as well as field observations, further research is required to investigate the nuances of cacao's effects on interpersonal connection, as well as cultural and social significance of global cacao ceremonies. Additionally, the fact that "connection to self" was the most-mentioned theme among survey respondents also merits further investigation. The type of cacao and preparation methods should be documented, as well as a larger sample size of surveys of facilitators of cacao ceremonies. The potential for cultural appropriation and placebo effects should be critically examined. In cacao events, the cultural history of cacao should be acknowledged.

If assumptions about interpersonal applications of cacao are true, then cacao could potentially be used in team or community-building activities, group therapy, and other contexts in which strong interpersonal connection and/or introspection are goals. It is imperative that event facilitators consider the potential damaging effects of cultural appropriation and take care not to engage in it. New Age spiritual use of cacao should be clearly separated from traditional Indigenous uses, without conflating the two. Additionally, facilitators should take care to avoid practices that could be disrespectful to Indigenous users. For example, event leaders should heed the advice of the interviewed Indigenous facilitator who stated that elements of rituals from different cacao-consuming cultures should not be mixed due to the belief that the spirits will collide. Moreover, contemporary cacao-themed events should refrain from calling their offerings "ceremonies" because this could imply that they are conducting a traditional Indigenous ritual, when in reality most are using cacao in ways that are only loosely and partially inspired by Indigenous traditions. Facilitators should instead select names that do not evoke Indigenous traditions, such as "cacao circle", "cacao event", "cacao and connection", or "cacao tasting".

We are calling for further research into the interpersonal and introspective applications of cacao with participants of cacao ceremonies as well as in other settings. We encourage other researchers to study the potential applications of cacao consumption across a range of contexts, including cacao ceremonies, clinical contexts, and any other settings aimed at connection-building.

Declarations

Permissions: None declared.

Sources of funding: None declared.

Conflicts of Interest: None declared.

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