Reinforcing the Unreal: Subliminals and the Normalization of Unscientific Body Transformations on Reddit

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Abstract

Subliminals are audiovisual routines that claim to induce change through mental programming, promising transformations across many aspects of modern life. While the idea of subliminal influence is not new, contemporary subliminals have become popular online commodities for pursuing implausible bodily modifications mediated by social media. This study applies a mixed-methods and computational approach to characterize the desires that motivate subliminal use and the social reinforcement that legitimizes unverified practices. The findings show that subliminal users are strongly oriented toward Western beauty ideals and frequently participate in adjacent magical thinking communities alongwith weight-loss and eating disorder forums. In terms of community interaction, posts that share positive results receive higher support and visibility, whereas skeptical reports tend to be unpopular and less endorsed. Taken together, this research contributes an empirical understanding of how unscientific attitudes toward rapid self-transformations are sustained and normalized in online spaces.

CCS Concepts

• **Human-centered computing** → **Empirical studies in collaborative and social computing**; **Empirical studies in HCI**.

Keywords

Subliminal, Reddit, Online communities, Magical thinking, Body Image

1 Introduction

Subliminals are audio-visual programs that claim to deliver transformations of body, mind, and life circumstances [2]. On YouTube, TikTok, and Reddit, these materials are circulated as playlists, affirmations, and soundtracks that promise outcomes ranging from lighter eyes, clearer skin, and rapid weight loss to wealth, romantic success, and even changes in DNA and race. Much like the

subliminal self-help tapes of the late 20th century, contemporary subliminals are tied to the enduring promise of results without effort [45]. Yet while the efficacy of subliminals has been discredited in psychological and neuroscience research [21, 33, 40], their popularity online continues to grow, fueled by platform recommendation systems, peer-to-peer advice, and collective belief in improbable transformations.

Existing scholarship on modern subliminals remains limited. Historical work has documented their origins in advertising controversies and commercial audiotapes [21, 34], while contemporary work offers theoretical readings of beauty subliminals as meditation and self-expression rituals for appearance optimization [2]. What is missing is a large-scale, empirical account of how online communities use, discuss, and legitimize subliminals. Understanding these practices matters not only for filling a gap in the HCI research but also for situating subliminals within broader questions of digital wellness, body image, and the normalization of pseudoscientific practices on online platforms. One such online community of interest is r/subliminal, which hosts more than 167,000 subscribers, presenting an important site for studying how subliminal practices are discussed, legitimized, and reinforced at scale. This paper contributes the first data-driven exploration of subliminal practices on Reddit. Using large-scale post, comment, and user activity data, this research aims to answer three questions:

RQ1: What themes and desires behind subliminal usage are evident in r/subliminal?

RQ1 is addressed by employing a well validated BERTopic modeling on 120K posts from r/subliminal spanning recent five years between 2020-2024. The analysis yields three salient themes that structure community discourse: (1) user desires for bodily, cosmetic, and life transformations; (2) community exchanges that involve recommendations, troubleshooting, and creator advice; and (3) technical practices such as listening routines, layering, or software tools. Further analysis of posts mentioning physical transformations finds that users overwhelmingly focus on goals such as skin lightening, eye color change, or rapid weight loss. RQ1 reveals a pattern of extraordinary transformations expected by subliminal users, prompting questions about whether users rely exclusively on subliminals or explore in other practices to pursue their goals. To investigate, RQ2 focuses on:

RQ2: Where else do subliminal users participate on Reddit, and how do these patterns situate subliminals within a broader Reddit ecosystem?

To answer RQ2, subreddit co-engagement networks are constructed by tracking all activity of users who post in r/subliminal within

a one-year window around their engagement. Community detection reveals clusters of adjacent interests, including appearance-optimization forums (e.g., skincare, looksmaxxing, body image spaces), youth-centered communities (e.g., r/teenagers, r/GenZ), and magical thinking forums (e.g., manifestation, reality shifting). RQ2 findings situate subliminals not as isolated practices but as one component in a broader ecology of transformation-oriented communities on Reddit. Notably, magical thinking communities such as r/manifestation or r/lawofattraction are frequented by all types of subliminal users, suggesting that belief in subliminals is reinforced by adjacent subreddits that normalize metaphysical or pseudoscientific approaches to self-change. This makes it especially important to understand how efficacy is established within r/subliminal itself. How do subliminal users validate the usefulness of subliminal practices towards their transformation goals? To understand, RQ3 turns to posts where users explicitly report results and examines how the community responds to claims of success. Specifically:

RQ3: How are pro- and anti-subliminal result posts received in terms of replies, scores, and conversational dynamics?

First, manual annotation in combination with language models is used to label posts sharing subliminal results as positive (pro-subliminal) or negative (critical of subliminals), and further qualify whether the comments in reply align with the view. Next, RQ3 compares engagement outcomes—reply counts, reply latency, post scores, and reply scores—using robust statistical tests. Results show that community discussions validate subliminal use, as supportive posts are rewarded with significantly higher scores, where the posts and comments critical of subliminal practices are downvoted.

Overall, this work contributes to the CHI community by showing how online discussions can normalize and amplify the pursuit of Western body ideals through pseudoscientific practices. By examining subliminal communities, the study demonstrates how online platforms host rituals of self-transformation that blend unscientific claims with social proof, making extraordinary expectations appear attainable. The findings extend HCI scholarship on health, wellness, and social media by drawing attention to a previously unexplored intersection of internet-mediated body transformation and magical thinking.

2 Background

This section begins by providing historical and scholarly background on subliminal messaging, tracing its emergence in mid-twentieth-century advertising controversies and its later rebranding through commercial self-help tapes. Next, scientific investigations into the efficacy of subliminal influence are reviewed, highlighting the limited scope of experimental findings compared to the claims that circulate on social media. Building on this foundation, the next subsection describes subliminals as they appear on social media platforms, outlining how they promise rapid transformations across appearance, health, and personal success. This background situates the current study within broader debates in psychology, media studies, and HCI, and motivates the subsequent empirical analysis of Reddit communities.

2.1 The Origins of Subliminal Messaging

The concept of "subliminal influence" first entered public discourse in the mid-20th century, crystallizing around advertising controversies in the 1950s and 1960s. A popular incident in 1957, where movie theater patrons were allegedly subliminally induced to purchase popcorn and Coca-Cola at the same time, sparked a larger debate around the power of subliminal messaging [34]. Popular accounts claimed that imperceptible cues embedded in media could steer consumer choices [35, 57].

In the late 1980s and early 1990s, subliminal messaging entered the commercial sphere through the boom of self-help audiotapes [21, 33, 40]. The audiotapes were presented as tools to produce many desirable effects, such as weight loss, smoking cessation, anxiety reduction, and improvement of sexual health [21]. A key point to note is that the popularity of subliminal self-help tapes was seemingly tied to the advertised promise of results without effort [45]. These narratives simultaneously fueled moral panic around privacy and free will while inviting scientific curiosity among cognitive, behavioral, and social psychologists [35]. The findings, limits, and scope of some early experiments investigating the validity of subliminal influence are discussed next.

2.1.1 *Scientific Explorations on the Efficacy of Subliminal Messaging*.
Across decades, psychology and neuroscience research has converged on one common theme that the claims of broad and sustainable change from subliminal messages are not supported. For example, Greenwald et al. conducted a double-blind label–content crossover of commercial audiotapes marketed for memory and self-esteem [21]. By crossing actual embedded content with mismatched product labels, they showed that improvements did not track the hidden subliminal content but instead followed expectations generated by the label. This established that expectancy, and not the actual subliminal input, accounted for perceived benefits, which was corroborated by other independent studies [40]. Merikle and Skanes further provided converging evidence, demonstrating that regularly listening to weight loss subliminals did not even provide the placebo effect. Rather, it only made the participants more aware of their weight [33]. Other research also concluded that listening to subliminal tapes in an academic context did not result in a measurable gain in academic performance [45].

It is important to acknowledge that these studies do not claim that subliminal-like effects are entirely absent. Laboratory studies have documented small, fast, task-dependent priming effects [25], but these are narrow in scope and can not account for the sweeping transformations promised by modern subliminal creators. Today's subliminal products extend far beyond the psychological mechanisms originally associated with them, making claims of impossible bodily transformations—claims examined in detail below and investigated throughout this paper.

2.1.2 *Modern Subliminals and Promises*.
Platform media have revived the old concept of subliminal influence in new forms. On YouTube, TikTok, and Reddit, subliminals circulate as audiovisual routines that pledge rapid transformations across appearance, mood, social relationships, and many more desires. To date, the only published scholarly work directly addressing contemporary

subliminal communities is Barghouty's essay on Beauty Subliminals [2]. The essay describes beauty subliminals as platform-based media that blend aspects of meditation, manifestation, and self-optimization. Barghouty positions these practices within broader histories of technospirituality and beauty culture, framing subliminals as audiovisual supplements for self-improvement. While subliminals have not been studied in the HCI community, the next subsection presents other works on adjacent themes such as internet mediated body transformations and health misinformation.

2.2 HCI Research on Body Transformations & Health Misinformation

HCI and CSCW research has produced a growing body of work examining how social platforms mediate aspirational body transformations and the circulation of health-related misinformation. Work in online health communities shows how platform affordances and community norms can normalize risky or disordered behaviors. For example, studies of pro–eating-disorder spaces quantify how linguistic cues signal illness severity [10] and how normative differences between Reddit communities such as r/proED and r/loseit guide divergent behavior-change goals [9]. Related research highlights gendered and cultural gaps in ED-focused analyses [38] and demonstrates how moderation systems privilege certain expressions while suppressing others [19]. Other HCI studies foreground platform infrastructures and user agency documenting how hashtags, group pages, feeds, and recommender systems shape body-transformation content [39, 58]. Users adapt to work with the algorithm, relying on visual cues to ascertain the legitimacy of different body transformation advice [39, 58]. Such dynamics can amplify body dissatisfaction even for users who only lurk without posting, with longitudinal evidence linking passive exposure to worsening eating-disorder symptoms [37].

Parallel to this work, HCI researchers have developed a substantial body of misinformation research focused on clinically unsupported or non–evidence-based health claims on social platforms. Foundational studies operationalize health misinformation through categories such as fake cures or alternative medicine. For example, work on cancer misinformation identifies ineffective treatments on Twitter and distinguishes users prone to sharing them from general health-interested audiences [20]. This paradigm has been extended to addiction recovery communities, where evidence-based guidance coexists with alternative, clinically unverified treatments that may pose harm[11]. At scale, survey research shows widespread exposure to alternative cancer treatment claims on mainstream platforms, with many users finding such claims believable and expressing mixed willingness to correct or share them [27].

Across this literature, platforms are shown to mediate health information and body transformation through sociotechnical mechanisms, especially through recommendation systems, community norms, and the design of group interaction. While most prior work examines behavior-based practices such as dieting, fitness, recovery, or clinically framed health misinformation (e.g., unproven cancer treatments), this study instead focuses on subliminals—media that claim to produce bodily or psychological change through non-clinical or metaphysical means. Because subliminals depart from

the behavioral and medical approaches that typically structure online health communities, this paper begins by first characterizing how Reddit users discuss these practices to establish a foundation for subsequent analysis.

## 3 RQ1: Modeling Themes and Desires Expressed in r/Subliminal

This research question focuses on presenting a broad overview of how modern-day subliminals are discussed on Reddit, and a thorough overlook of what desires users want to fulfill through subliminals. RQ1 starts with exploring Reddit's subliminal community through topic modeling and qualitative topic validation. The desires for transformation behind subliminal use are further investigated through dependency parsing and phrase representations. The next section introduces Reddit's subliminal community before delving into the methods.

3.1 Data

RQ1 draws on public posts from the subreddit r/subliminal, a forum dedicated to the use of audio or visual media that claim to bring about changes in appearance, behavior, or life circumstances through repeated exposure. Within this space, members post requests for recommendations, describe personal experiences, and exchange advice about how to achieve desired outcomes. Figure 1 shows a recreated example of a typical post, where a user reports perceived results after listening to subliminal tracks. Such posts are common in the community and often spark discussions where other users affirm the change, suggest new routines, or share similar experiences. At the time of writing, r/subliminal hosts approximately 167K subscribers, reflecting both the popularity of subliminal practices and the sustained interest in these claims. For this study, data were collected from the Pushshift Reddit archive [3], covering the period of five years from 2020 to 2024. The dataset includes roughly 120K posts from r/subliminal. Posts or comments deleted by their authors were removed in all the downstream RQs to ensure that only publicly available content was analyzed. Reddit bot accounts were further removed using keywords ("auto" or bots) and known bot lists [1]

Reddit was selected as the focal platform because it allows for longer text-based accounts of subliminal use that are not readily accessible on audiovisual platforms like TikTok, Instagram, or YouTube. Users on Reddit articulate their motivations, doubts, perceived results, and routines in detail that allows for robust modeling of desires in RQ1. Moreover, Reddit's structure as a large ecosystem of overlapping communities enables RQ2 analysis of how users participate across adjacent spaces, helping situate subliminals within broader behavioral and topical clusters. Prior research highlights how cross-subreddit participation patterns reflect meaningful forms of community overlap and user experience, and also documents structural characteristics of Reddit data that shape what kinds of discourse persist [41]. At the same time, subreddit participation is self-selected, representing data from only those subliminal users who chose to participate in public discussions through posts and comments. Pushshift coverage also may be incomplete for some

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[1]https://www.reddit.com/r/reddit.com/wiki/suspiciousaccounts/
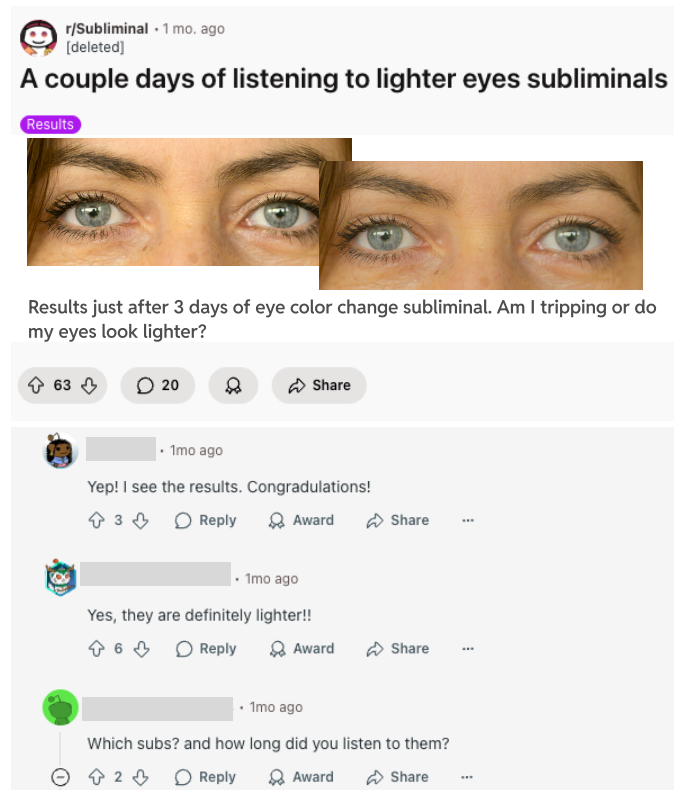
Figure 1: Recreated example of a typical post from `r/subliminal`, edited for privacy. The post shows a user on `r/subliminal` sharing the results after using eye color change subliminals. The user also mentions achieving this transformation in just three days. Typical responses by community members validate the original post.

time periods. The findings, therefore, reflect publicly available discourse within Reddit rather than the full range of subliminal practices across social media platforms.

3.2 Characterizing Discussions in r/subliminal

3.2.1 ***Topics in r/subliminal Posts***. To characterize recurring themes in `r/subliminal`, a BERTopic model [22] was trained on the full corpus of 120K posts (2020–2024). BERTopic combines sentence embeddings with dimensionality reduction and density-based clustering, producing human-readable topics. Specifically, HDB-SCAN, a density-based algorithm, allows for outlier detection to identify documents which are not assigned to any topic [31]. This is especially suited for heterogeneous online discussions where many posts could be too short or off-topic. To best model the data, hyperparameter optimization was performed over clutser size and minimum sample parameters. Different configurations of the parameters were evaluated in terms of *topic coherence*—the measure of systematic consistency of the topics with original texts[43]—and *coverage*— the number of texts that were assigned a topic label. A coherence–coverage plot was used to identify the best parameter configuration (see Appendix 9). Higher coherence and better coverage are preferred. The final model produced 74 topics with 68% coverage and a coherence of 0.58. This coherence value is in

alignment with other studies using BERTopic for online content [8, 30].

The topic assignment was further validated by examining 15 highest-probability and 15 lowest-probability `r/subliminal` posts in each topic. Examining the two poles on the probability spectrum of a given topic is similar to examining the best and worst representations of the topic. Each post was manually judged for fit with the topic. Overall, **94%** of the sampled posts—half of which were the least representative samples of the corresponding topic—were found to align with their assigned topic, providing evidence of strong topic alignment. During the manual validation process, topics were also subsequently collapsed into higher-level categories based on the topic hierarchies. This resulted in a smaller set of interpretable super-categories such as *desires behind subliminal use*, *community discussions*, and *tools and techniques* (Figure 2). The resulting topic descriptions and illustrative examples are reported in the following section.

3.2.2 ***Topics in r/subliminal***. Manual validation of 74 topics and subsequent merging resulted in 16 consolidated topics organized into three broad themes[2]: *desires behind subliminal usage*, *community discussions*, and *tools and techniques for subliminal practices*. These themes capture the motivations users have behind using

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[2]All quotes presented in this section are paraphrased to limit re-identification

desires behind subliminal use	Appearance	changes to eyes, lips, skin, and other facial features
	Body	changes to weight, body fat, legs, arms, shape
	Wealth	increase in money, real estate, and general wealth
	Mental	improvement in confidence, happiness, anxiety etc.
	Social	gaining romantic relationships, improving social life
	Success	achieving academic or professional success
	Health	curing health conditions and diseases
	Other	changing reality, DNA and race
community discussion	Recommendations	subliminal recommendation requests
	Creator advise	advise on creating subliminals
	Paid subliminals	discussions on paid subliminals and creators
	Troubleshooting	investigating lack of results, improving routines
	Side-effects	side effects (ear bleeding, dizziness) of subliminal use
tools/ techniques	Software/hardware	product recommendations such as headphones
	Routines	optimizing subliminal rituals
	Other social media	links to Discord, Pinterest and YouTube

Figure 2: Topic modeling results from `r/subliminal`, showing merged topics grouped into three primary themes: desires behind subliminal use, community discussions, and tools/techniques. These categories summarize 74 modeled topics into interpretable clusters that structure community discourse. The organization of topics highlights how user motivations, peer interactions, and technical advice result in distinct but interdependent components of subliminal engagement on Reddit.

subliminals, the practical knowledge-sharing that sustains the community, and the ritualistic aspects and paraphernalia of modern-day subliminal practices.

Desires behind subliminal use
This theme captures the wide range of personal transformations sought through modern day subliminals. Users often articulate goals ranging from appearance modification to altering life circumstances. Notably, many of these desires overlap with broader social pressures around body image, success, and social belonging.

- **Appearance (28%):** Requests for changes to facial features such as eyes, lips, skin tone, and hair dominate this category. Many users seek lighter eye colors, clearer skin, or fuller lips, reflecting Eurocentric and pop-culture beauty ideals.
  How can I change my face with subliminals to anatomically have less distance between eyebrows and eyes?
- **Body (16%):** Desires for weight loss, reduced body fat, reshaped legs and arms, or more muscular builds are prevalent in this subtopic. Posts often link physical transformation to increased self-worth and social validation.
  I need help with losing weight with my mind. I cant stand to go out anymore
- **Wealth (14%):** While physical transformations dominate subliminal use, a smaller but significant cluster centers on subliminals for attracting money, property, or general wealth, tying personal transformation to financial security.
  As it says, I need a subliminal that works really fast as I need money before Christmas.

- **Mental health (7%):** Users describe listening to subliminals to improve mental health. Most of the posts in this area focused on curing social anxiety, depression, and gaining confidence or improving self image.
  I know everyone's gunna say I need professional help but are there like any subs for depression that are safe?
- **Social (2%):** Users describe listening to subliminals to gain romantic partners, manipulate attraction by other people, improve friendships, or mend family relationships.
  I have a big crush on someone... sooooo... does anyone know of any good subs to get him to like me?
- **Success (2%):** Posts asking for advice or sharing results of subliminals tied to achieving professional or academic success. Notably, many posts in this area seemingly come from students preparing for impending exams. Other users desire job change or career modifications.
  do desired life subs work? like do they change your job or your degree or something?
- **Health & Diseases (0.8%):** Topics focusing on curing serious illnesses or chronic diseases. These subliminal requests are especially concerning, given the seriousness of conditions some users try to cure through subliminals.
  Has anyone cured their facial paralysis with subliminals? If so, which?
- **Other (0.5%)** Desires for changing DNA, changing realities, or even altering racial identity. While less frequent, these posts illustrate some of the most expansive and unreal expectations placed on subliminals.

> *THE MOST powerful I have listened to. It's purpose is to give you the DNA of the Greek Titans*
> *I've been trying to shift realities and I'm trying to shift to a reality where I am an only child. Any tips on how to do this?*

Community discussions

This theme reflects the ways in which members engage with one another, provide guidance, and negotiate community norms. Discussions are mostly centered around asking for general recommendations and troubleshooting the subliminal use.

- **Recommendations (11%):** The most common form of interaction involves users requesting or offering track recommendations that are not tailored to any of the specific goals mentioned in the previous theme. These exchanges often function as peer endorsements that may give legitimacy to subliminal creators.
   > *has anyone tried sapien mind subs?*
- **Creator advice (1.5%):** Members also seek and share detailed advice on how to produce subliminals. Some users ask for help in creating professional subliminals for sale, whereas others focus on DIY subliminals for personal use.
   > *I was trying to make my own sub. Should I put in photoshopped pictures of my desired nose?*
- **Paid subliminals (6%):** Discussions frequently extend to commercial products, highlighting the broader subliminal ecosystem beyond Reddit. Alarmingly, as the users report, some subliminals cost $50 to $100, with the most "premium" and lengthy subliminals costing up to $1000. This theme raises several concerns about the commodification of practices like subliminals legitimized through Reddit forums.
   > *Is anyone aware of any subliminal maker who accepts payment through google pay for a paid request? Also, how much do you generally pay for nose reduction?*
   > *might be wrong but am I the only one who thinks a lot of sub makers charge too much for paid requests? Many sub makes are literally charging 100$ for cc subs? I get 50$ but 100$? Seriously? In this economy?*
- **Troubleshooting (5%):** Users asking for advice on how to correct their subliminal practices for better results. Some users also complain about the lack of results.
   > *I have been listening to subs without headphones. Does that affect things? Are bluetooth earbuds okay?*
- **Side-effects (4%):** Listening to subliminals often involves engaging with audio and videos for a long period of time. Some users voice their concerns about the side effects of the subliminals.
   > *2 days into my sub journey.. I know a lot of people mention headaches but is this normal? Also is it normal to start to feel very dizzy while listening?*

Tools and techniques

The final theme captures the practical dimensions of subliminal use, focusing on the routines and tools in daily practice.

- **Software and hardware (1.2%):** Recommendations include specific headphones, apps, and editing tools and patterns thought to enhance effectiveness.

> *So, the question: Can you layer subliminals? I have 8 that need to be layered. Which software to use?*
- **Routines (0.6%):** Posts detail listening schedules, sleep playlists, and multi-track strategies, reflecting attempts to maximize results through disciplined repetition.
   > *is it usually bad to sleep while listening to subliminals? I want to get my daily 2 hours in but cant find the time*
- **Other social media:** Posts with links to other social media discussions on subliminals or creator profiles.
   > *Please DM me if you would like to be a moderator in my subliminal messages server*

Notably, many of the desires expressed in the first theme focus on specific Western-centric appearance changes, such as changing eye color from black to green or straightening the nose. The next section of RQ1 further explores the specific kinds of physical transformations desired by the subliminal users.

3.3 Desires behind Subliminal Use

The most prominent motivations behind subliminal practices were found to be cosmetic (appearance) and bodily transformations. The manual topic validation revealed an inclination towards highly specific appearance-related changes, such as altering eye color or lightening skin tone. This section investigates, at scale, the alignment of community discussions with such targeted appearance and body transformations.

*3.3.1 **Identifying Targets of Transformations**.* To systematically capture the range of transformation mentioned by subliminal a pilot lexicon capturing key categories of transformation (e.g., weight, eyes, lips), was developed with representative keywords in each category. For example, "weight" transformations were expressed through various keywords such as `weight`, `fat`, `metabolism`. Or changes to eyes-related features included mentions of `eyes`, `iris`, `eyelids`, `pupils`. However, the initial lexicon was limited to the sample manually inspected in topic validation. To further expand the list of keywords, a word embedding-based approach was employed where similar words or phrases could be identified using vector similarity-based measures.

Specifically, the entire corpus was tokenized with multi-word phrases. These phrases were further embedded using fastText word vectors [6], and for each category, the top 20 nearest neighbors were retrieved (Figure 3(a)). Relevant terms were manually added back into the subject lexicon, and the process was repeated iteratively three times to expand coverage. The resulting lexicon captures a wide range of keywords displayed in Appendix Table 3.

*3.3.2 **Extracting Qualifiers on Desire Targets**.* The lexicon developed earlier identifies *what* kind of transformation a post refers to (e.g., eyes, weight, lips). However, the lexicon alone cannot reveal the *specific nature* of the desired transformation. To capture these finer-grained details, dependency parsing was used to extract qualifiers attached to the target keywords. In other words, this step identifies not just that users are discussing "eyes," but whether they are asking for "lighter eyes," "bigger eyes," or "change in eye color."

The parsing procedure detects modifiers, verbs, and event-object constructions that co-occur with the target. For instance:

(a) Expanding keywords related to
transformations desires

(b) Dependency parsing for identifying qualifiers on
transformation desires
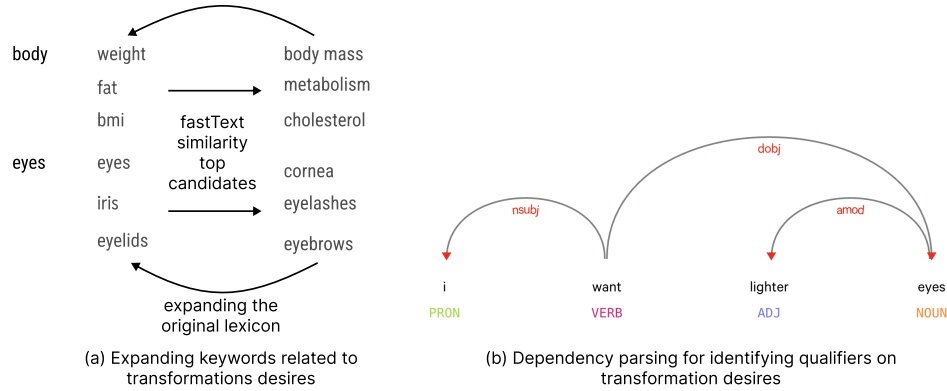
Figure 3: (a) Keyword lexicons were expanded using fastText similarity to capture a broader range of body- and appearance-related terms (e.g., eyes, skin, weight, metabolism). (b) Dependency parsing was then applied to identify qualifiers (e.g., lighter, slimmer, clearer) that specify the direction and nature of desired transformations. Together, these steps enabled systematic extraction of transformation targets and modifiers from large-scale Reddit posts, forming the basis for analyzing user desires in RQ1.This pipeline reveals both the diversity of desired outcomes and the grammatical patterns through which users articulate specific transformation goals.

- Adjective modifiers: `lighter eyes`, `clearer skin`, `thinner lips`.
- Verb–object relations: `lose weight`, `grow hair`, `whiten teeth`.
- Predicative structures: `skin is clearer`, `make nose sharper`.

Figure 3 (b) displays an example of adjective modifier detection. The intuition behind this approach is to go beyond capturing just the desire-related keywords but also to qualify them with attributes that express the *direction*, *intensity*, or *nature* of transformation. By systematically capturing these qualifiers, it becomes possible to map not only the subjects of subliminal desires but also the specific outcomes that users imagine to be achievable.

The output of this step is therefore a collection of (`target`, `phrase`) pairs, such as (`eyes`, `lighter eyes`) or (`weight`, `lose weight`). These pairs provide a structured representation of the community's imagined transformations and form the basis for subsequent quantitative analysis.

3.3.3 ***Typifying the Transformations***. The process described earlier results in a collection of (`target`, `phrase`) pairs that collectively represent candidates for transformations imagined by subliminal users. While these pairs capture the surface form of desires (e.g., `lighter eyes`, `lose weight`), they do not yet provide a systematic way to characterize the *type* of transformation being requested. To enable structured analysis, a transformation axis lexicon was developed to capture common directions of change, such as "increase vs. decrease" or "darkening vs. lightening."

An initial set of axes was constructed by grouping seed words that express related transformations. For example, size reduction desires were grouped under the axis `size_down`, with seed words such as:

`"size_down": ["lose", "reduce", "drop"...]`

Similarly, size increase desires were grouped under the axis `size_up`, with seed words such as:

`"size_up": ["gain", "increase", "grow"...]`

This lexicon captures the abstract direction of change that users attach to body parts or features, independent of the specific target (e.g., eyes, skin, weight). A complete list of transformation types and associated phrases is presented in Appendix Table 4.

To assign extracted phrases to these axes, sentence-transformer embeddings were employed. Each axis was represented by the mean embedding of its seed words, effectively creating a prototype vector for that transformation direction. Candidate phrases (e.g., `lose body fat`, `fuller lips`, `longer eyelashes`) were then embedded and compared against all transformation phrases using embedding cosine similarity. The transformation type with the highest similarity score (with at least 0.75 similarity) was assigned as the label for that phrase. This procedure allowed for robust generalization beyond the exact seed words, capturing semantically similar expressions that emerged in community discussions.

The result of this step is a structured mapping from raw desire expressions to generalized transformation types. For instance:

- `lose weight` → `size_down`
- `fuller lips` → `size_up`
- `lighter eyes` → `color_lighten`
- `darker skin tone` → `color_darken`

This typification allows the desired physical transformations to be aggregated and compared along shared dimensions of change (e.g., how often users request *reductions* vs. *increases*). In the following section, these axes are used to quantify the prevalence of different transformation directions and highlight dominant patterns of aspiration in the subliminal community.

3.4 Characteristics of Desired Physical Transformations

Figure 4 captures the main results of characterizing transformations through the word embedding methods outlined earlier. Analysis of wealth and mental health-related transformations only resulted

(a) Appearance transformations

(b) Body transformations
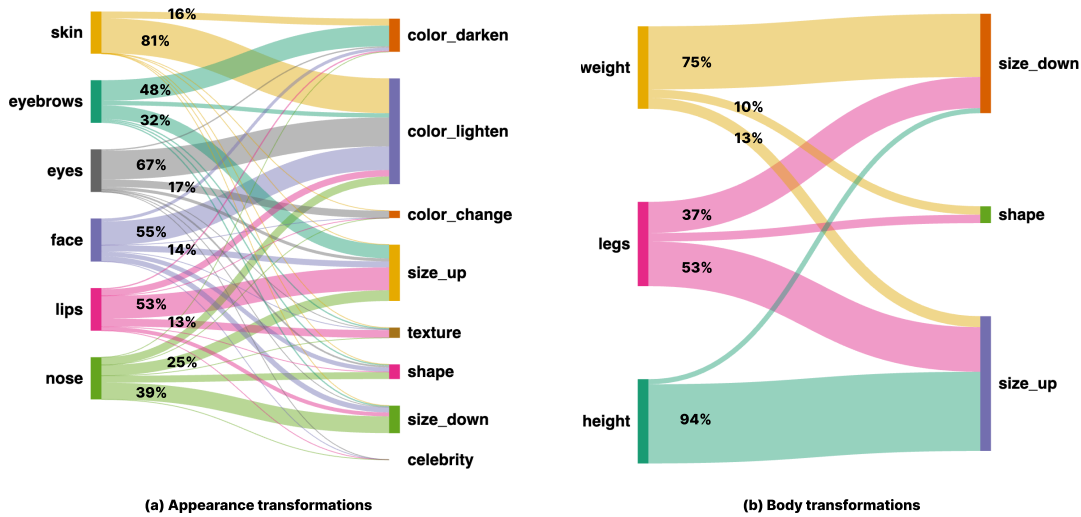
Figure 4: Distribution of desired physical transformations expressed in `r/subliminal`. Sankey diagrams show dominant categories, with most posts focusing on appearance-related desires such as skin lightening, eye color change, and lip fullness. Body-related requests largely emphasize weight loss, height increase, and leg reshaping. Percentages represent the share of posts mentioning each transformation type. The flows visually demonstrate how user attention clusters around a small set of highly idealized traits, revealing community-wide priorities and aesthetic norms.

in growth-related patterns—gaining more money and wealth or improving various mental health targets. Hence, the downstream discussion focuses mainly on physical transformations that exhibit a range of patterns.

In Figure 4 prominent threads around physical transformations in the Sankey diagrams are annotated with the percentage of posts falling in that category. For example, 81% of the skin transformation posts mention lightening the skin color. Below, the main findings are discussed in detail with illustrative examples.

*3.4.1 **Appearance Transformations**.* Close to 18K posts mention specific appearance transformations relevant to skin, eyes, or facial features. Appearance-related transformations overwhelmingly skew toward lighter, smaller, and sharper features, reflecting widely documented beauty ideals and cultural biases.

- **Skin:** 81% of skin-related transformations involve desires for skin lightening. Posts often mention wanting to achieve a "fairer" or "paler" tone, sometimes tied to Western ideals of beauty. For example, one post reads: "Does anyone know a playlist that can make my skin look lighter and clearer in a few weeks?". Interestingly, 18% of the posts also discuss transformations towards darker skin colors.
- **Eyes:** More than half (67%) of eye-related desires focus on lightening the eye color and 17% discuss changing eye color. Common requests include "lighter eyes" or "changing dark brown to hazel." Other qualifiers involve achieving "brighter eyes" or "clearer pupils," which again align with culturally valued eye aesthetics.
- **Lips:** A majority of lip-related transformations (53%) emphasize increasing fullness. Typical examples include requests

for "fuller lips" or "plumper lips," echoing trends popularized by celebrity culture and beauty influencers.
- **Facial features:** Other requests include darker eyebrows (48%) and narrower noses (39%). These desires highlight the prominence of facial contouring ideals within subliminal practices.

Overall, users lean more towards desiring the Western ideals of appearance through lighter skin and facial features [28], and a smaller nose [12].

*3.4.2 **Body Transformations**.* Body transformations are similarly dominated by desires for reduction, particularly in weight and fat-related targets, though a subset of requests leans toward growth in specific areas.

- **Weight:** 75% of weight-related transformations are aimed at sizing down, with phrases like "lose weight fast" or "drop fat" being common. Users often quantify these desires (e.g., "lose 5 kg in a month"), suggesting a focus on rapid and often unrealistic results.
- **Height:** In contrast, 94% of posts related to height focus on increasing stature. Example desires include "grow taller by 2 inches" or "increase height overnight." Such requests underscore the appeal of subliminals as a means of bypassing biological constraints.
- **Legs:** Transformations in this categories are mixed. About 37% of legs-related posts seek slimming, while 53% of leg-related posts mention elongation. Typical examples include "slimmer thighs" or "longer legs.

Taken together, the results indicate that, going beyond the subliminal self-help tapes of earlier decades, modern-day subliminals are primarily used to pursue physiological transformations such as

eye color change, skin lightening, or other cosmetic modifications that are unattainable through sound or mental affirmations alone. Unlike the earlier focus on habit change (e.g., smoking cessation, stress reduction), contemporary subliminals target visible markers of beauty and identity, often aligning with Eurocentric or pop-cultural ideals. This shift underscores how subliminals have evolved from tools marketed for subtle self-improvement into digital artifacts embedded in broader cultures of appearance optimization. To understand how these desires are situated within users' wider Reddit lives, the next research question examines where subliminal users participate elsewhere on Reddit and how these engagements position subliminal practices within broader community ecologies.

4 RQ2: Characterizing the Reddit Activity of Subliminal Users

RQ1 examined the content of subliminal forums and showed that users often desired Western ideals, which in many cases are physiologically unattainable through non-clinical practices like subliminals. Building on that, RQ2 explores where subliminal users participate elsewhere on Reddit around the same time they engage in r/subliminal. Towards this goal, a subreddit network—a graphical representation of subreddits based on user co-engagement—is developed across different themes in subliminal desires.

4.1 Building subreddit networks

*4.1.1 **Data**.* Based on the data obtained during RQ1, subliminal users were assigned to desire cohorts when they had at least one post in r/subliminal expressing a particular transformation. For example, all users with posts containing appearance-related words from Table 3 were assigned to the "appearance cohort". Four non-exclusive cohorts were constructed based on the top four desire categories: *appearance* (n = 9,370 users), *body* (n = 7,833), *wealth* (n = 2,064), and *mental health* (n = 1,115). For each user, all public Reddit posts and comments were gathered in a one-year window centered on their r/subliminal activity (six months before through six months after). This design kept the focus on interests that were contemporary to subliminal engagement, rather than covering the user's entire tenure on Reddit.

*4.1.2 **Subreddit Co-engagement Network**.* Within each cohort, an undirected co-engagement graph was built where nodes represented subreddits observed in the window. Two subreddits are connected with an edge if the same user posts or comments in both. In other words, edge weights reflect the number of unique users shared by the nodes (subreddits). Only the edges with more than 10 edge weights (more than 10 unique users in common) were kept in the network to focus on the most common subreddit co-engagement. Because cohorts were non-exclusive, the same user could appear in multiple graphs if they expressed multiple desires. Figures 5, 6 and 7 display subreddit networks across different user cohorts. Differently colored nodes in each network represent a cluster detected using the Louvain community detection algorithm [5]. The following subsection presents a detailed analysis of clusters found across different user cohorts.

4.2 Results: Appearance Network

Community detection on the appearance network constructed using subreddit co-engagement of 9370 subliminal users is displayed in Figure 5. The network resulted in 9 clusters, out of which the top 3 clusters are annotated in Figure 5 as 1)Appearance 2)Magical thinking, and 3)Demographic communities.

A dense purple cluster primarily consists of subreddits dedicated to appearance optimization and ratings. Prominent examples (by average degree) include r/SkincareAddiction, r/MakeupAddiction, r/BodyDysmorphia, r/amiugly, r/amiuglyBrutallyHonest, and r/LooksmaxxingAdvice. Reddit's Skincare-oriented forums operate as dermatological advice and knowledge-sharing spaces where credibility is established through self-reported evidence [16, 42] [3]. In contrast, communities like r/amiugly, r/amiuglyBrutallyHonest, and r/BodyDysmorphia have been associated with toxic body ideals [47] and with perspectives diverging from body positivity [44].

Alongside these appearance-focused forums, the network also reveals a distinct green cluster (Figure 5) of magical thinking communities, such as r/NevilleGoddard, r/energy_work, and r/Manifestation. These subreddits emphasize metaphysical or spiritual approaches to self-change—including affirmations, energy work, and manifestation—that contrast with the evidence-oriented discourse of skincare and dermatology spaces. Their adjacency to appearance clusters highlights how users co-adopt appearance optimization, grounded in medical science with solely belief-driven methods of transformation, illustrating the coexistence of both, scientific and metaphysical practices of self-improvement. The third prominent cluster (blue cluster, Figure 5) includes demographic communities such as r/teenagers, r/GenZ, and r/ApplyingToCollege. The activity in these subreddits points to the younger age profile of many subliminal users, with discussions often situated in youth-centered spaces.

4.3 Results: Body Network

Figure 6 displays a subreddit co-engagement network derived from the Reddit activity of 8733 users who discuss body transformations through subliminals. Three large communities are evident: *Weight loss* (pink), *Magical thinking* (purple), and *Advice/Q&A* (blue).

The body network shows a distinct weight-loss cluster (pink cluster Figure 6) anchored by subreddits such as r/EDAnonymous, r/loseit, and r/WeightLossAdvice. Prior work on r/loseit links engagement patterns and discussion themes with reported weight change, highlighting the importance of logging, accountability, and progress reporting [29, 36].

Similar to the appearance cluster, users engaged in body transformation also co-participate in magical-thinking communities (purple; Figure 6), where manifestation/"law of assumption" style practices promise effort-free reshaping of the body. Recent peer-reviewed work characterizes manifestation beliefs, underscoring how such beliefs can encourage optimistic but unrealistic expectations about rapid change [17].

A third prominent community (blue; Figure 6) centers on advice-seeking and general Q&A forums, including youth-oriented spaces (e.g., r/teenagers) and broad "Ask" subreddits. Emerging work

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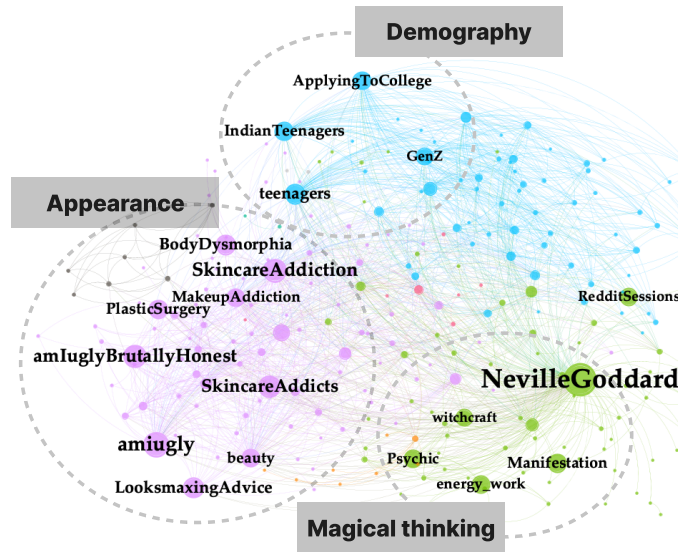[3]https://www.reddit.com/r/SkincareAddiction/wiki/rule_overview/ Rule 7

Figure 5: Subreddit co-engagement network of 9,370 subliminal users focused on appearance-related desires. The network reveals three major clusters: appearance forums (e.g., skincare, looksmaxxing, body image communities), magical thinking communities (e.g., r/Manifestation, r/NevilleGoddard), and youth-centered spaces (e.g., r/teenagers, r/GenZ). Node colors represent Louvain-detected clusters, highlighting how evidence-oriented and belief-driven practices coexist within subliminal users' activity.
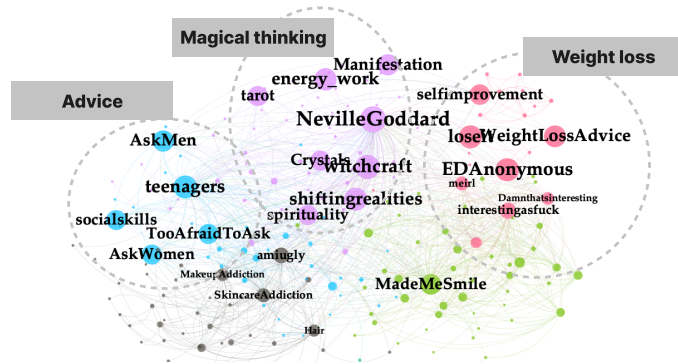

Figure 6: Subreddit co-engagement network of 8,733 r/subliminal users focused on body transformation. The network reveals three major clusters: weight-loss communities (pink; e.g., r/EDAnonymous, r/loseit, r/WeightLossAdvice), magical thinking communities (purple; e.g., r/Manifestation, r/lawofassumption), and advice/Q&A spaces (blue; e.g., r/teenagers, general "Ask" subreddits). Node colors represent Louvain-detected clusters.

analyzing r/teenagers shows adolescents may use these forums to frame health and risk behaviors and seek peer guidance [59].

4.4 Results: Wealth Network

Figure 7(a) highlights three main clusters in the wealth co-engagement network. The largest, a purple cluster, combines trading and hacks forums (r/forex, r/daytrading), tech (r/openAI), and esoteric practices like r/realityshifting, r/luciddreaming. A second, pink cluster brings together explicitly magical-thinking wealth communities such as r/nevillegoddard, and r/lawofassumption. These subreddits frame prosperity as the outcome of affirmations and

belief systems. Finally, a small entertainment cluster contains subreddits related to humor and everyday life commentary, illustrating how wealth subliminals users also participate in the popular Reddit culture.

4.5 Results: Mental Health Network

Figure 7 (b) reveals a dense mental-health community (e.g., depression, anxiety, ADHD support) closely connected to a magical-thinking cluster. Posts in these communities emphasize peer support, coping strategies, and self-disclosure, with some users also encountering belief-based solutions that promise effortless change.
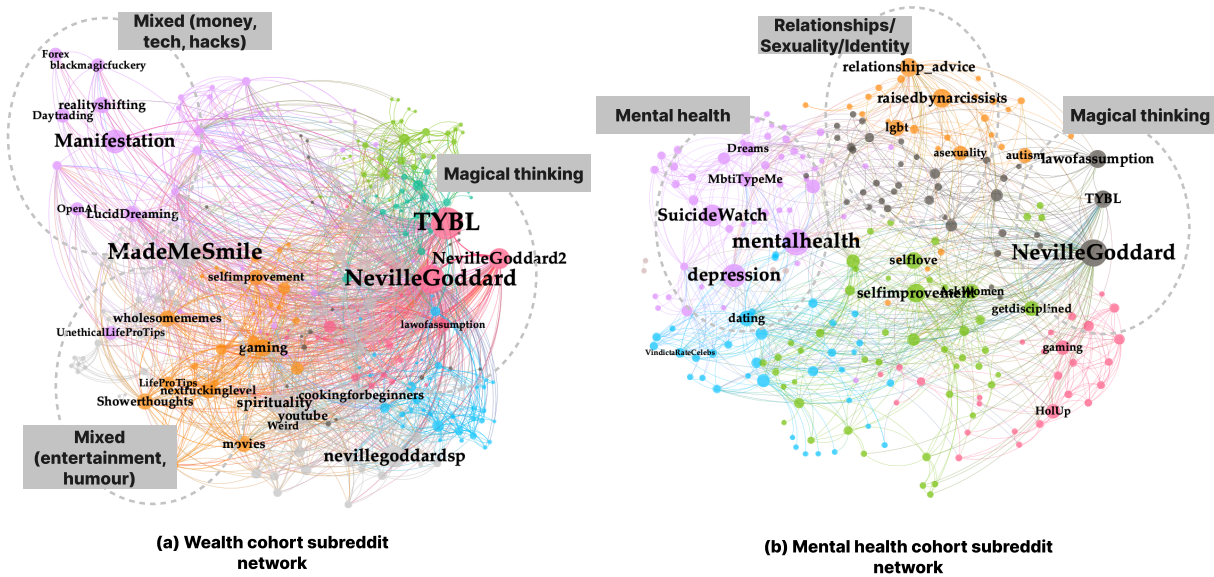
(a) Wealth cohort subreddit network

(b) Mental health cohort subreddit network

Figure 7: a) Wealth co-engagement network of 2,064 subliminal users. The purple cluster combines trading and hacks forums (e.g., `r/forex`, `r/daytrading`), tech experimentation (e.g., `r/openAI`), and esoteric practices (e.g., `r/realityshifting`, `r/luciddreaming`, `r/manifestation`). A second cluster highlights magical-thinking prosperity communities such as `r/nevillegoddard` and `r/lawofassumption`. (b) Mental health cohort co-engagement network of 1,115 subliminal users. The network reveals a dense set of mental health support communities and a magical-thinking cluster.

This adjacency suggests that individuals seeking relief may encounter both evidence-oriented support and persuasive but unscientific "quick fixes." The mental health network of subliminal users resonates with the traditional use of subliminal self-help tapes that were used to primarily improve mental health and self-confidence.

Across appearance, body, wealth, and mental health cohorts, a clear pattern suggests that subliminal users move between evidence-oriented forums (e.g., skincare, dieting, trading, or mental health support) and belief-driven spaces devoted to manifestation, reality shifting, or other metaphysical transformations. This juxtaposition illustrates how pragmatic strategies for self-improvement routinely coexist with mystical, and often unscientific, practices. In this sense, subliminals appear less as an isolated pursuit and more as one option within a broader spectrum of transformation strategies. This raises a crucial question: how do users come to believe that subliminals actually "work"? To address this, RQ3 shifts focus to the micro-level of interaction, examining how comment threads create social proof and reinforcement that sustain faith in subliminal efficacy.

5 RQ3: Reinforcing Subliminal Practices

In RQ1, we observed that many users express desires for extraordinary changes (e.g., changing eye color or facial structure) by listening to subliminal audio tracks. This motivates further questions on how subliminal users continue to trust the efficacy of subliminals and normalize the practice. To answer this, RQ3 examines how "results" are shared and reinforced through community discussions. Manual inspection of Subliminal posts in RQ1 revealed

that the perceived credibility of subliminals may thrive on anecdotal evidence: users post about any perceived results (even subtle or subjective changes) as proof that the audios work. The community then responds to these result posts in ways that often celebrate successes and rationalize failures, creating a social feedback loop that reinforces belief in the practice.

5.1 Identifying Posts with Subliminal Results

Subliminal users commonly share their outcomes in dedicated result posts – for example, a user might post "My eyes turned hazel after two months of using an eye color subliminal!" along with before-and-after photos, or conversely "No results from weight loss sub after 3 weeks, am I doing something wrong?". Figure 1 illustrates a typical positive result post, where the original poster shares their success and other users reply with affirmations and curiosity. Posts sharing results are commonly tagged with Results flair as displayed in Figure 1. Authors may also use other flairs such as Rant and Advice when troubleshooting or discussing a lack of result. To identify posts sharing or discussing subliminal results along with positive or negative at scale, GPT-4 model is used, which is reported to be most compatible for data annotations [13]. Specifically, GPT-4 is prompted with the following prompt to classify posts with Results, Rant or Advice flair.

Annotation Prompt

You are an annotator for Reddit posts.
Your job is to classify each post across the following categories and return valid JSON only:
Results (single-label):

- yes – details outcomes or progress of subliminal use; asking for troubleshooting help, discussing side effects or lack of results
- no – no discussion or reports on subliminal results, efficacy of potential results

View toward subliminals (single-label):

- positive – supportive, hopeful, satisfied, encouraging, highly recommending, positive results of subliminals.
- neutral – informational, mixed, or unclear stance.
- negative – skeptical, dismissive, angry, warns against or reports negative results of subliminals.

Response (strict):

```
{
  "results": "<yes|no|unknwon>",
  "view": "<positive|neutral|negative>",
  "confidence": 0.0
}
```

- confidence [0,1] reflecting certainty.
- No extra keys. No markdown. No comments.

To ensure consistency, GPT labeling process was repeated three times (with temperature 0 for deterministic output). About 2% (408 posts) had inconsistent labels across three runs. These posts were further carefully reviewed and labeled by hand to guarantee accuracy. A total of 20896 posts were labeled as containing results. Out of those 12,977 shared positive results, 3,739 shared negative results, and 4,180 were neutral.

5.2 Measuring Comment Alignment with the Posts

Class	Precision	Recall	F1-score	Support
supporting	0.8615	0.8960	0.8784	375
opposing	0.8694	0.8347	0.8517	375
neutral	0.7917	0.8107	0.8011	375
irrelevant	0.9809	0.9573	0.9690	375
Weighted avg	0.8559	0.8847	0.8750	1500

Table 1: Performance of the fine-tuned DeBERTa-v3-large model on the held-out test set (n=1500). Results are reported across four stance categories—supporting, opposing, neutral, and irrelevant—in terms of precision, recall, and F1-score. Averages indicate an overall macro-F1 of 0.87, reflecting strong performance in labeling comment stance toward subliminal result posts.

To delve deeper into how comments align or disagree with the original post, stance analysis was performed on the comment threads. First, all top level comments—comments that are direct replies to original posts—were extracted for posts sharing positive and negative subliminal results. Then, a random sample of 7K comments was manually labeled for stance towards the claim made in the original post using four categories: approving (supportive or agreeing with the OP's point of view), opposing (challenging or disagreeing with the OP), neutral (neither for nor against the claim, e.g. just asking a question or providing info), and irrelevant (off-topic remarks). Labeling stance in this context was relatively straightforward—many comments are short, and their sentiment toward the OP's result (or lack thereof) is usually clear (e.g. "That's great, I knew it would work!" is approving).

To scale up the comment annotation further, deberta-v3-large was fine-tuned on the manually annotated data. Inputs for the model included a pair of the original post for context and the comment. The model was trained on NVIDIA L40 for 5 epochs and early stopping with a batch size of 16 and a learning rate of $1.5e^5$. Table 1 encodes the average test performance metrics for 5 5-fold cross-validation setup. Overall, the training resulted in a high-precision (0.85), high-recall (0.88) model with (0.87) macro-F1 score. The finetuned model was used to further classify all post-comment pairs with comment stances as supporting, opposing, neutral, or irrelevant.

## 5.3 Community Response towards Subliminal Result Sharing

Methods described earlier result in labels on result sharing posts in the subliminal community as positive or negative. Moreover, each comment on the labeled post is tagged as "supporting", "opposing", "neutral" or "irrelevant" based on whether the comment affirms or rejects views presented in the post. This section presents results for statistical comparisons across various conversational features, such asthe number of comments, score, and reply latency received by posts, and the upvotes received by comments with various alignments with posts sharing subliminal results.

Specifically, given the imbalanced sample size across positive and negative subliminal posts, and the strong right–skew typical of engagement data, Brunner–Munzel test, also called the generalized Wilcoxon test, is used to compare distributions. Brunner-Munzel test is similar to other non-parametric comparison tests; however, it allows for comparison between distributions with unequal variances [24].

To interpret the size and direction of the differences, Cliff's δ, was used which provides intuitive probabilistic effect size measures indicating how often one condition outperforms the other [32]. Cliff's δ is also a more suitable measure for non-normal distributions such as those compared in this research question.

5.4 Results: How many replies do pro– vs. anti–subliminal posts attract?

Reply counts capture engagement and attention provided by the subreddit members on a given post. Figure 8 (a) compares the per–post number of comment replies for *positive* (pro—subliminal) posts to *negative* posts. On an average, pro-subliminal posts receive
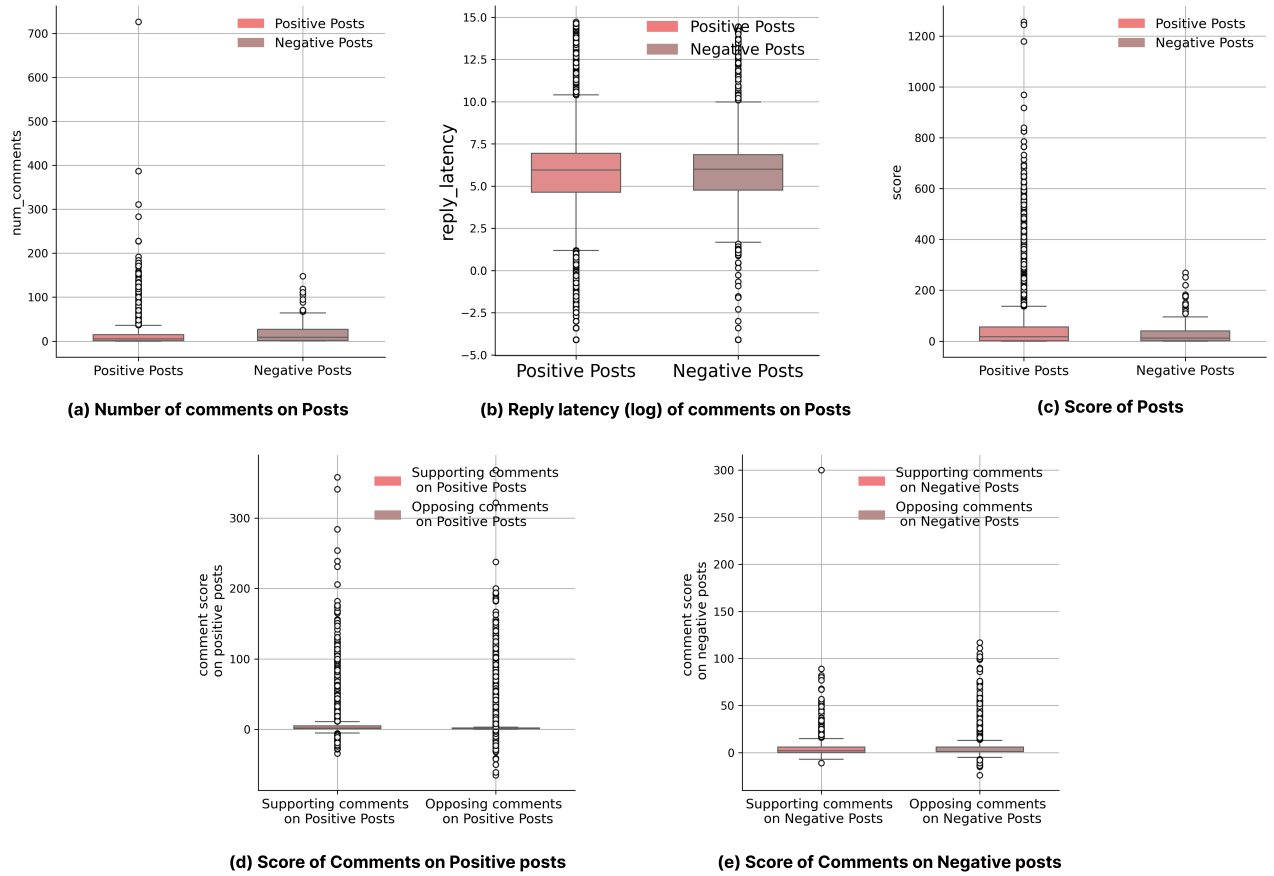
Figure 8: (a) Number of comments on posts comparing pro-subliminal and anti-subliminal results. (b) Reply latency (log-scaled) for comments on these posts. (c) Score distributions of pro- and anti-subliminal posts. (d) Comment scores on pro-subliminal posts. (e) Comment scores on anti-subliminal posts. Together, these plots show how engagement, timing, and scoring dynamics differ by stance, highlighting that while skeptical posts receive more replies, positive posts and their supporting comments are more highly endorsed. These patterns reveal structural reinforcement mechanisms through which community approval may shape the visibility and legitimacy of pro-subliminal viewpoints.

12 replies, whereas negative posts receive 16 replies. Both distributions are strongly right–skewed with long tails, consistent with organic social media activity. This also makes simple mean comparison ineffective. Across the full distributions, negative posts attract more replies on average. Brunner–Munzel test detects a difference in rank ordering ($t = 5.88$, $p < 0.0001$)) of the number of replies received for positive and negative posts. Cliff's δ, indicates a small negative effect ($\delta = -0.085$), again suggesting that **negative posts are more likely than positive posts to attract higher reply counts**.

5.5 Results: How quickly do positive vs. negative subliminal posts receive replies?

Reply latency measures the time from a post to each of its replies. Both positive (pro–subliminal) and negative posts show extremely right–skewed distributions, with many fast responses and a long tail of delayed ones (Figure 8 (b) log of reply in seconds). Across the

distributions, there is no reliable difference in reply speed: Brunner–Munzel test is not significant ($t = 0.87$, $p = 0.385$) and Cliff's indicates a negligible effect size. Taken together, these findings suggest that **reply timing is broadly comparable for positive and negative posts**, with no consistent evidence of either positive or negative posts eliciting quicker replies.

5.6 Results: How are pro– vs. anti–subliminal posts evaluated by the community (post scores)?

Both positive (pro–subliminal) and negative posts show right–skewed score distributions, but positive result-sharing posts exhibit a thicker upper tail (Figure 8 (c)). Across the full distributions, pro posts are evaluated more favorably: statistical comparison detects a strong difference in rank ordering ($p < 0.0001$)), and Cliff's $\delta = 0.209$ indicates a small–to–moderate effect size favoring positive posts. These results suggest a clear community preference for supportive

content. While negative posts generate more discussion, **positive posts receive higher scores**, which may increase their visibility to newcomers in the subreddit.

5.7 Results: How are supporting and opposing replies evaluated within pro–subliminal threads?

In threads where the original post supports subliminals, replies can either *align* with that stance or *challenge* it. Reply scores provide a concise measure of community approval for each side of the dialogue. Both distributions are right–skewed (Figure 8 (d)). Replies that align with positive subliminal posts are scored more favorably. Brunner–Munzel test detects clear separation ($p < 0.0001$)), and Cliff's δ = 0.285 indicates a small–to–moderate effect size for comparison. Taken together, these findings suggest that **agreement with the pro–subliminal stance is consistently rewarded with higher scores**.

5.8 Results: How are supporting and opposing replies evaluated within negative subliminal threads?

In threads where the original post is critical of subliminals, replies can either *align* with that criticism or push back against it. Both reply–score distributions are highly right–skewed (Figure 8 (e)). Brunner–Munzel test is only marginally significant ($t = 2.39$, $p = 0.017$), with small Cliff's $\delta = -0.097$ indicating that replies that *do not align* with a negative view of subliminals are scored higher.

Overall, statistical comparisons across various community engagement metrics suggest a pattern of conformity, whether in the form of rewarding positive subliminal posts or opposing anti-subliminal ones. The next section synthesizes the results of all research questions together and discusses observations that may motivate future work around subliminal and other magical thinking communities.

6 Discussion

This research shows that subliminals today are tied to extraordinary expectations, with users often seeking changes that are biologically implausible, such as altering eye color, lightening skin, or rapidly losing weight, through mere audio-visual triggers. At the same time, subliminals are taken up for wealth, success, and mental health, positioning them as tools for optimizing nearly every aspect of life. Analyses of Reddit activity demonstrate that these practices are connected to both youth-centered spaces and communities built around magical thinking, alongside more evidence-oriented forums. Community responses further reinforce belief in subliminals, as positive posts are rewarded while skepticism is discouraged. The next subsections discuss the role of technology in supporting subliminal expectations, how subliminals are situated in the broader ecosystem of magical thinking for self-optimization, and how community support sustains and normalizes these practices.

6.1 Subliminal Technology and Body Image

Subliminals exemplify how everyday technologies—particularly videos and audio tracks—are reframed as instruments of physical transformation. As RQ1 shows, users treat layered sounds, frequencies, and affirmations as vehicles for altering bodily features, extending earlier self-help tapes into a digital ecosystem where media technologies themselves are imagined agents of change. This reliance on audio-visual platforms highlights how technology is not only a delivery channel but also central to the ritualistic aspects of subliminal belief.

Coupled with evidence from RQ2 that users also co-engage in online spaces like r/amiugly, r/BodyDysmorphia, or eating disorder subreddits, subliminals appear to function as coping mechanisms for managing body dissatisfaction. This is consistent with research linking social media exposure to higher levels of body dissatisfaction [18, 46], and with work showing how algorithmic feeds amplify negative self-perception by showcasing highly edited or idealized bodies [23]. RQ3 further demonstrates that posts reporting positive "results" from subliminals receive higher scores, increasing their visibility and reinforcing the impression that subliminals are effective. Such dynamics may convince vulnerable users, particularly those already struggling with body image concerns, to invest further hope, and in some cases money, into subliminal practices. In this way, subliminals not only commodify body image insecurities but also position everyday media technologies as gateways to improbable transformation.

At the same time, it is important to acknowledge that belief and expectancy can shape subjective experiences even when biological change is implausible. Placebo effects have been shown to influence self-perceived well-being and can play a role in weight-loss motivation and self-regulation [15]. Thus, while subliminals may not deliver the transformations users seek, belief-driven engagement may still produce emotional or motivational benefits. The risk, as this study shows, lies in how platforms amplify unrealistic expectations and obscure the boundary between plausible well-being effects and physiologically impossible outcomes.

6.2 Subliminals, Magical Thinking and Spirituality

Magical thinking refers to the belief that one's thoughts, rituals, or symbolic actions can directly shape external reality in ways that defy scientific causality [56]. In contemporary New Age contexts, this often takes the form of the Law of Attraction, which posits that positive visualization and affirmations can manifest desired outcomes in health, wealth, or relationships. Recent psychological work also shows that belief in manifestation is widespread and often tied to optimism about personal control, even when outcomes are implausible [17].

These approaches strongly parallel the ways subliminal users engage with audio-visual media. Like manifestation communities, subliminal practices depend on the causality between thought and action—the belief that exposing oneself to certain sounds or affirmations will cause bodily or life changes. Both rely on ritual and repetition, whether through affirmations in manifestation or through carefully structured listening routines and playlists in subliminal communities. Importantly, RQ2 shows that these overlaps are not incidental. Across all user cohorts—whether focused on appearance, body change, wealth, or mental health—there is systematic co-engagement with manifestation and magical thinking clusters.

This pattern suggests that subliminal practices are embedded in a broader ecosystem of belief-driven transformation strategies. However, internet-mediated magical or ritual practices are not merely symptoms of unscientific attitudes; they are meaningful tools for managing uncertainty, emotion, and identity. HCI research shows that spiritual care, ritual, and belief-driven digital practices are central components of wellbeing for many people [50],[51],[4]. Users seek technologies that help them feel connected beyond themselves, whether or not metaphysical causality is scientifically supported. Subliminals, in this sense, can be understood as part of a broader ecosystem of digital magical thinking communities, providing comfort, structure, and a sense of agency.

Research has found that social media algorithms can further reinforce magical beliefs. On TikTok, algorithmic delivery itself has been spiritualized by users who describe feeds as divinely guided [14]. Scholars term this phenomenon as algorithmic conspirituality—the attribution of mystical or fated meaning to recommendation systems [14, 53]. In parallel, subliminal communities ascribe transformative power to YouTube videos and audio tracks, treating them not merely as media but as ritualized technologies capable of inducing bodily or life changes. Crucially, the reinforcement of these beliefs does not rely on technology alone but also on community dynamics. The next subsection explores the role of social proof in subliminal beliefs.

6.3 Reinforcing the Unreal through Community Support

Across RQ1–RQ3, a consistent pattern emerges in which community participation amplifies, rather than tempers, unrealistic expectations. Posts in r/subliminal routinely articulate desires that are physiologically implausible, yet the conversations promoting the success of subliminals, mostly around appearance transformation, provide validation. Specifically, RQ3 demonstrates dynamics within the community where supportive voices are readily accepted. Pro–subliminal posts receive higher scores, aligned replies in supportive threads are rewarded, and even when anti–subliminal posts attract more replies, agreement within those threads does not carry comparable scores. In practice, this means that skepticism is more likely to generate conversation, but endorsement is more likely to receive approval signals that affect visibility.

In the late nineteenth and early twentieth centuries, metaphysical and occult traditions spread through newspapers, lecture tours, and publishing networks [1]. These infrastructures provided both visibility and reinforcement, enabling individual beliefs to merge into collective movements. RQ3 shows a parallel dynamic in the digital era, though Reddit communities that elevate positive subliminal result posts through upvotes and affirming comments, while skeptical accounts receive less support. Much like earlier circuits of diffusion, platform affordances and community norms today create scaled-up social reinforcement and conformity, sustaining belief in practices that promise extraordinary transformation.

One thing of note is that, regardless of the true success of subliminals, much like many other Reddit communities, r/subliminal may provide users with an inclusive and accepting space where users can share desires, vulnerabilities, and aspirations without judgment.

This sense of belonging can be meaningful in its own right, providing emotional support and community connection even when the underlying transformation claims may be unrealistic. Such dual dynamics underscore the need for community designs that safeguard users while preserving the supportive aspects of these spaces.

6.4 Design Implications

Results from this paper indicate that users frequently engage with subliminal content as a viable pathway toward high-stakes personal transformation, particularly in domains such as bodily change, mental health, and financial success. One implication for platform design is the opportunity to provide evidence-backed topical summaries that help users calibrate expectations about what kinds of changes are medically or scientifically achievable [7, 52]. For instance, Reddit's new AI summaries feature [4] can be a valuable, non-invasive resource for subliminal users.

At the same time, results from this paper show that beliefs about subliminals are not shaped by evidence alone. Instead, users often rely on personal stories, success posts, and community reactions to decide whether subliminals "work." Repeated exposure to positive results may contribute to how credibility is built in the community. In this setting, simple true–false labels or fact-checking are unlikely to match how users actually evaluate claims. Design approaches that reflect this process may be more effective. Rather than labeling claims as inaccurate or misleading, platforms could indicate the type of evidence a post relies on, such as personal experience, influencer endorsement, or promotional content, or prompt users to consider alternative explanations for perceived change. For example, reported visual results may stem from differences in lighting, camera exposure, or viewing angle rather than from the subliminal itself. Such approaches may encourage more critical engagement while still respecting the peer-based sensemaking practices that sustain participation in these communities.

Similar forms of contextual support could point users seeking wealth or success subliminals toward accessible financial-literacy resources [54], and users engaging with mental-health–oriented subliminals toward authentic mental health literacy resources [49] [26]. Rather than policing belief, these interventions can aim to ground users' expectations in empirically supported information and broaden the set of healthier life optimization alternatives available to them.

While the findings from this study highlight several opportunities for design intervention, it is important to avoid the trap of solutionism [48]. Platforms should not be positioned as the sole authorities on wellbeing, nor can technical features fully address the social, emotional, or spiritual motivations that draw users to subliminals. Further research is needed to understand when such interventions are appropriate, whether they are effective, and how they can be implemented without weakening the supportive community dynamics that many users value.

6.5 Ethical Considerations

The data analyzed in this paper are drawn from publicly accessible Reddit posts and comments, but the topics under study involve sensitive issues such as body image, health, and mental wellbeing.

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[4]Reddit has recently introduced AI summaries based on Reddit conversations

To minimize risks, no usernames are reported, and all quoted material is paraphrased to prohibit re-identification while preserving meaning [55]. In line with platform terms of service and ethical guidance on working with vulnerable online communities, the raw dataset cannot be released publicly. To avoid causing harm to the communities studied, the analysis focuses on aggregated inferences and patterns rather than individual cases, ensuring that findings do not stigmatize or pathologize users who may already experience heightened vulnerability.

7 Future Work and Limitations

This section presents some limitations that may be relevant in interpreting the results of this work. First, the analysis relies on observational user activity data on Reddit. While reply counts, scores, and co-engagement networks capture community dynamics, they cannot establish causal relationships. While the historic data collection generally matches with the current records such as subscriber number and post and comment volume, some data may be lost in the archival collection. Moreover, comments deleted by users were not analyzed for ethical reasons, which might affect the completeness of the dataset. Engagement patterns may be influenced by unobserved factors such as posting hour, subreddit visibility, or user demographics. Future work could incorporate controlled experiments, interview studies, or survey-based approaches to complement the quantitative work presented. On this note, subreddit co-engagement networks only highlight adjacency between subliminals, appearance optimization, and magical thinking communities, but they do not capture lurking or passive consumption. Many users may draw influence from communities without active posting, leading to an underestimation of cross-community exposure. In RQ3, while the labeling of posts and comments provides structured insight into stance and alignment, automated classification introduces the possibility of error. Although held-out test performance was high enough, future work could strengthen reliability by combining human annotation with model-based labeling at larger scales. Finally, the research is limited to English language posts and Reddit as a case study. Subliminal practices also thrive on YouTube, TikTok, and Discord, where audiovisual content and recommendation systems shape discovery and reinforcement in different ways. Comparative, cross-platform analyses are needed to understand how platform affordances mediate the spread and impact of subliminal practices.

8 Conclusion

This paper provides the first large-scale empirical study of subliminal practices on Reddit. By characterizing the desires users express, mapping their cross-community engagements, and analyzing how supportive versus critical content is received, the study shows how improbable aspirations are sustained through peer validation, community ecologies, and platform-level evaluation mechanisms. Together, these findings demonstrate how subliminals operate not only as individual self-help routines but as socially reinforced practices shaped by digital infrastructures, with implications for understanding the intersection of digitally mediated body image and magical thinking.

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A   BERT topic coherence

B   RQ1 Subliminal Desire Characterization
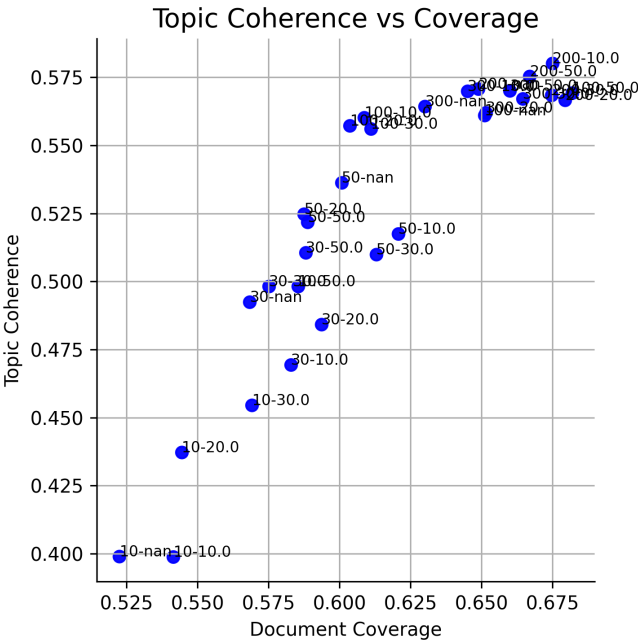
Figure 9: Parameter tuning results for BERTopic

Table 2: Targets and Associated Terms

Target	Associated Terms
weight	weight, mass, fat, bmi, metabolism, metabolic rate, body fat, muscle, bodyfat, visceral fat, x kg
eyes	eyes, eye, eyelids, vision, pupils, pupil, cornea, iris, eyelid, irises, limbal rings, outer eye, inner eye, eyeball, eyeballs, eye socket, eye sockets
lips	lips, lip, tongue, smile, teeth
eyebrows	eyebrows, brows, lashes, eyelashes
legs	legs, thighs, calves, toes, knees, inner thighs
body_shape	waist, hips, butt, chest, figure, body shape, muscle, boobs, breast, bones, bone structure, torso, stomach, body, ribcage, rib cage, shoulder, arm fat, muscle_mass, belly, belly fat, lower belly, thigh gap, hip bone, body frame, pelvis, waistline, waist line, limbs, glutes
skin	skin, skintone, skin tone, skin texture, undertone, undertones
nose	nose
height	height
face	face, mouth, teeth, ears, jaw, jawline, forehead, attractiveness, lower face, upper face, midface, lower jaw, chin, side jaw, cheek, cheeks, jawbone
mental	confidence, intelligence, self worth, happiness, mental health, self love, selflove, self discipline, calmness, anxiety, depression, adhd, self harm
money	money, wealth, richness, property, dollars, finance, finances, lottery, prosperity, crypto

Table 3: Targets of subliminal transformations and associated lexical terms. This table lists body parts, traits, and domains (e.g., weight, eyes, lips, money).

Axis	Associated Terms
size_down	lose, reduce, drop, slim, shrink, narrow, shorter, small, smaller, reduction, flat, flatten, loss, decrease, slim down, tiny, narrow, narrower, burn, skinny, skinnier
size_up	gain, increase, grow, wider, fuller, thicker, bigger, elongate, longer, long, taller, gain, wide, widen, grow, regrow, longer, lengthen, denser
color_lighten	lighten, lighter, whiten, whitening, fair, fairer, brighten, brighter, paler, de-tan, fade tan, reduce melanin
color_darken	darken, darker, tan, pigmented, increase melanin
color_change	brown, blue, green, hazel, amber, gray, grey, black, red, sea green, green/mint, hazel green, olive
shape	almond, arched, hourglass, cupid's bow, defined, straight, straighter, taller, skinny, catlike, pear shaped
texture	smooth, clear, glowing, firm, toned, tighten, soft
celebrity	emma stone, taylor swift, madison beer,beyoncé, beyonce, kim kardashian, jennifer lopez, bella hadid, zendaya, rihanna, chris hemsworth, michael b. jordan,megan fox, angelina jolie, kylie jenner

Table 4: Phrases associated with transformation axes