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From algorithms to the self: understanding algorithmic alienation in the digital age

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Abstract

Background This study explores the psychosocial effects of algorithmic systems on individuals in digital environments and conceptualizes Algorithmic Alienation as a framework for understanding these effects.

Methods A qualitative design was employed using four focus groups ($N = 20$) with participants aged 18–30 and 31–50. Data were collected through semi-structured interviews conducted in Turkish, transcribed verbatim, and analyzed within an interpretivist paradigm using reflexive thematic analysis. Analytic rigor was supported through researcher reflexivity and iterative coding, with theme development guided by analytic dialogue among the research team to enhance interpretive depth rather than to establish inter-coder reliability, in line with COREQ criteria.

Results Five overarching themes captured participants' experiences. Participants described recognizing algorithmic steering alongside an accompanying sense of illusory choice, as well as a gradual weakening of decision-making habits and an increasing reliance on automated content consumption. Repeated exposure was associated with perceived shifts in interests and experiences of identity ambiguity, accompanied by feelings of detachment and emotional discomfort. Some participants reported developing resistance strategies, such as deliberate content searching or reducing platform use. Overall, the findings indicate an ongoing tension between perceived autonomy and an emerging awareness that personal preferences are being shaped by external algorithmic mechanisms.

Conclusion Findings suggest that participants experienced algorithmic environments as influencing not only what they consume but also how they interpret their sense of self and agency. To conceptualize this multifaceted process, this study refines the notion of Algorithmic Alienation as a subjective experience] marked by diminished autonomy, blurred identity boundaries, and emotional disconnection. The results highlight the need for increased algorithmic transparency, digital literacy, and further research into how such experiences vary across age groups, cultural contexts, and platform types.

Keywords Algorithmic alienation, Digital self, Autonomy, Identity ambiguity, Psychosocial impact

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Background

In today's algorithmically mediated digital culture, individuals exist within a continuous flow of personalized information that shapes their daily lives and subjective experiences [1, 2]. Social media platforms, search engines, and streaming services employ data-driven recommendation systems that not only influence what users see but also how they think, feel, and act. This phenomenon has raised new questions about the boundaries of autonomy, identity, and agency in the digital age [3, 4].

Over the past decade, critical discussions around algorithmic systems have expanded beyond technical design to explore their social and psychological implications. Scholars have examined algorithmic power and governance, emphasizing how platforms organize visibility, shape attention, and subtly regulate behaviors [4, 5]. Closely related frameworks such as choice architecture and nudging illustrate how digital interfaces guide users toward preferred actions, often without explicit awareness [6]. These mechanisms reveal a form of soft governance, where design becomes a tool of behavioral influence.

Parallel to these debates, the concepts of subjectivation and alienation have been revisited to describe how individuals internalize algorithmic logic. Drawing on critical theory traditions, subjectivation refers to the process by which individuals become subjects shaped by power structures [7]. In algorithmic contexts, users simultaneously exercise agency and become governed by data-driven predictions—a dual condition that fosters subtle alienation from authentic self-determination [8]. This aligns with Marxian notions of alienation, now reinterpreted as estrangement not from labor, but from one's digital self—a self continually produced through interactions with algorithmic systems.

Furthermore, processes of datafication [9] and platformization [10] have transformed personal experiences into measurable, tradable data units. This commodification of digital behavior intensifies the tension between individuality and algorithmic predictability, often reducing human uniqueness to calculable patterns. Within this dynamic, the illusion of choice [11] becomes central: individuals perceive freedom, yet navigate pre-structured content environments shaped by predictive models. Similarly, filter bubbles describe how algorithmic personalization narrows informational diversity, reinforcing confirmation biases and isolating users within ideologically homogeneous spaces.

Previous research has sought to capture the psychosocial consequences of digital life through constructs such as digital addiction, digital burnout, and social media fatigue [12, 13]. These frameworks provide valuable insights into excessive use, emotional exhaustion, and cognitive overload. However, they primarily focus on behavioral symptoms and emotional depletion, leaving unexplored the deeper identity-level transformations and autonomy erosion experienced by individuals navigating algorithmic systems.

The present study addresses this conceptual gap by exploring how algorithmic systems shape individuals' perceptions of choice, freedom, and selfhood. We conceptualize these experiences under the term Algorithmic Alienation, which captures the subtle, cumulative disconnection individuals feel from their authentic preferences, values, and identity coherence as they engage with algorithmically curated digital environments. Unlike existing frameworks, Algorithmic Alienation integrates psychological, cognitive, and existential dimensions to explain how individuals perceive themselves as free agents while operating within algorithmically constrained realities.

In this sense, the study does not claim to introduce a completely new phenomenon but rather to synthesize and extend existing perspectives into a coherent framework that illuminates the psychosocial depth of digital experiences. It builds upon prior work on autonomy and self-determination [14, 15] while adding an interpretive dimension grounded in individuals' lived experiences. Through qualitative inquiry, this study aims to elucidate the ways in which algorithmic environments reconfigure the self, gradually transforming personal freedom into a mediated construct of algorithmic design.

This study addresses the following question: "How do algorithmically curated content flows influence individuals' perceptions of autonomy, identity, and self-determination in digital environments?"

The study is directed toward researchers and practitioners in digital media studies, psychology, human–computer interaction, and digital well-being. By offering a phenomenological account of how individuals interpret algorithmic influence, the study aims to inform academic debates on autonomy and identity, while providing practical insights for designers, policymakers, and educators concerned with digital literacy and platform governance.

Method

This study employed a qualitative research design grounded in an interpretivist qualitative paradigm with sensitivity to participants' lived experiences to explore individuals' lived experiences of algorithmically mediated digital environments. The study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist to ensure methodological transparency and rigor.

Participants

Participants were recruited using purposive and maximum variation sampling from residents of a private residential complex in western Türkiye. The inclusion

criteria were: (a) aged 18 years or older, (b) literate and voluntarily consenting to participate, (c) active user of at least one digital platform (e.g., YouTube, Instagram, TikTok, Spotify), and (d) exposure to algorithmically recommended content. Exclusion criteria included cognitive impairment, inability to participate in group discussions, or professional affiliation with data or media industries. This criterion was applied to prioritize lay user perspectives and to avoid analytically privileging expert interpretations of algorithmic systems, a limitation that is addressed in the Discussion. This residential complex was selected as a bounded social setting in which everyday digital media practices are routinely embedded in daily life; however, the authors acknowledge that shared socioeconomic and cultural characteristics of this community may shape how algorithmic influence is articulated.

The age range (18–50 years) was chosen to capture generational diversity in digital media use while maintaining homogeneity in digital literacy levels. A total of 100 eligible individuals were invited via the site's digital bulletin board and community messaging channels. Of these, 24 expressed interest, 4 declined due to scheduling conflicts, and 20 participated. Participants were distributed evenly across two age bands (18–30 and 31–50 years) to explore potential differences in perceptions of algorithmic influence across life stages (Table 1).

Table 1 Participant Characteristics

Participant ID	Age	Gender	Education/ Occupation	Primary Platforms Used	Approx. Daily Use
P1	19	F	Undergraduate student	Instagram, TikTok	3–4 h
P2	22	M	Undergraduate student	YouTube, Reddit	2–3 h
P3	24	F	Graphic designer	Instagram, Pinterest	4–5 h
P4	28	M	Engineer	YouTube, Twitter/X	2–3 h
P5	30	F	Nurse	Instagram, TikTok	3 h
P6	18	F	High school graduate	TikTok, YouTube	4–5 h
P7	20	M	University student	Twitch, YouTube	3–4 h
P8	27	F	Marketing specialist	Instagram, LinkedIn	3 h
P9	23	M	Barista	TikTok, YouTube	3–4 h
P10	25	F	Bank employee	Instagram, Twitter/X	2–3 h
P11	35	M	Technician	You Tube, Facebook	2 h
P12	42	F	Teacher	Instagram, YouTube	2–3 h
P13	38	M	Civil servant	Facebook, YouTube	2 h
P14	45	F	Accountant	Instagram, TikTok	3–4 h
P15	31	M	Software developer	Reddit, YouTube	3 h
P16	50	F	Housewife	Facebook, Instagram	2–3 h
P17	48	M	Driver	YouTube, TikTok	2–3 h
P18	33	F	Psychologist	Instagram, YouTube	2 h
P19	40	M	Small business owner	Facebook, Instagram	3 h
P20	32	F	Administrative assistant	Instagram, TikTok	2–3 h

Focus group composition and setting

Four focus group sessions were held — two per age band, each comprising five participants. Group size was intentionally limited to encourage deep reflection and balanced participation. Sessions took place in a quiet meeting room within the residential complex to which researchers had formal access. The moderator established rapport, set ground rules emphasizing confidentiality, and ensured that all participants had equal opportunities to speak. Observational notes were taken regarding nonverbal cues and group dynamics. The authors also acknowledge that focus group interactions may amplify shared narratives or normative alignments regarding algorithmic influence; this possibility was considered during analysis through reflexive memoing and attention to divergent accounts.

Data collection

Data collection occurred between June 1 and June 15, 2025. A semi-structured focus group guide containing ten open-ended questions and follow-up probes was used. Each question targeted a specific dimension of participants' experiences with algorithmic environments — including perceptions of autonomy, choice, identity, and emotion (see Table 2). The guide was developed collaboratively by the authors and refined after a pilot discussion with two volunteers.

Sessions lasted 60–90 min and were audio-recorded with consent. The first author (female, PhD, psychiatric nursing) moderated all sessions, supported by a notetaker. The first author possessed prior experience in qualitative interviewing but no prior relationship with participants.

Researcher reflexivity

The research team comprised three academics from health sciences and social sciences. Each maintained reflexive journals throughout the study to document preconceptions regarding technology and autonomy. Before data collection, the team discussed potential biases about algorithmic influence and established a shared commitment to bracketing assumptions through memoing and peer debriefing. No personal or professional ties existed between the researchers and participants.

Table 2 Focus Group Interview Questions

	Main Question	Sub-Questions	Aim
1	Which digital platforms do you use most frequently in your daily life?	Who do you think determines the types of content you consume on these platforms?	To explore participants' overall digital platform experience and initial awareness of algorithmic curation.
2	Have you ever thought the content you encounter on digital platforms influences your choices?	Can you share when you realized that content recommendations directed you toward specific preferences?	To examine the perceived impact of algorithmic recommendations on decision-making.
3	When selecting content online, do you feel you are making independent choices?	Have you ever questioned, "Did I choose this, or was it chosen for me?"	To explore participants' perceptions of autonomy and possible experiences of heteronomy.
4	Have digital content and platforms changed your interests, thoughts, or ways of expressing yourself?	Have you experienced any identity shifts as a result of algorithmic influence?	To identify perceived algorithm-driven changes in identity and self-perception.
5	Have you ever felt disconnected from your true self while consuming digital content?	Have there been moments when you thought, "This is not me"?	To directly identify markers of identity-based alienation.
6	Do you think the content suggested by platforms serves a directive purpose?	Have these suggestions guided you toward a particular lifestyle, mindset, or routine?	To uncover awareness of the directive/steering nature of algorithms.
7	How did you feel when you realized algorithms were shaping your online behavior?	Have you developed any strategies to resist or manage this influence?	To explore emotional and cognitive reactions and emerging coping strategies.
8	Have you ever felt that the content presented to you lacked real alternatives?	How do you think your choices would differ if algorithmic systems did not exist?	To investigate perceptions of the "illusion of choice."
9	Do you think algorithms influence individuals or society more broadly?	How would a society shaped by algorithmic systems look, in your opinion?	To explore broader individual and societal implications of algorithmic influence.
10	Is there anything else you would like to share regarding your experiences with digital platforms?	Would you like to add anything regarding the relationship between algorithms and personal freedom?	To provide space for additional insights not captured in earlier questions.

Transcription and translation

All interviews were conducted in Turkish and transcribed verbatim by trained assistants. A bilingual author verified transcripts against audio files for accuracy. English translations were completed by the same bilingual researcher and checked by another co-author. Selected excerpts underwent back-translation to ensure meaning integrity and equivalence of emotional tone.

Data analysis

Data were analyzed using thematic analysis following Braun and Clarke's (2006) six-phase approach [16]. Analysis was conducted manually to preserve proximity to the data.

Familiarization

All transcripts were read multiple times and annotated for emerging ideas.

Initial coding

Two researchers independently coded all transcripts line by line.

Theme generation

Codes were grouped into potential themes using constant comparison.

Review and refinement

Themes were reviewed for coherence and distinctiveness; discrepancies were logged and resolved through discussion.

Defining and naming

Final themes and subthemes were defined, supported by representative quotations.

Conceptual integration

Themes were interpreted in dialogue with existing theories of autonomy, identity, and alienation to support the analytic articulation of the Algorithmic Alienation framework.

Interpretive alignment was developed through iterative analytic discussion. Where disagreements arose, coders compared rationales and either merged overlapping codes or retained both until additional evidence emerged. To maintain interpretive depth rather than numerical reliability, inter-coder agreement coefficients were not computed. To enhance analytic transparency, a condensed codebook and the hierarchical coding structure are provided in Appendix A. Consistent with reflexive thematic analysis, analytic discussions were used to deepen interpretation rather than to establish numerical reliability, positioning themes as interpretive constructions.

Illustrative example of the coding process

To enhance analytic transparency, a brief example illustrating the linkage between raw data, codes, and themes is provided. For instance, one participant stated, "There

are hundreds of videos on YouTube, but they all feel the same." This excerpt was initially coded as perceived content similarity and sense of limited choice. These codes were then examined alongside similar instances reflecting participants' perceptions of constrained variation in content exposure and were grouped under the subtheme Illusion of Choice. This subtheme was subsequently situated within the overarching theme Erosion of the Perception of Freedom, which captures participants' accounts of how algorithmically structured environments shape and limit perceived autonomy. This example demonstrates how individual expressions were systematically interpreted and integrated into higher-order thematic constructs.

Rigor and trustworthiness

Methodological rigor was ensured through investigator triangulation, reflexive journaling, and audit trailing. Credibility was enhanced via repeated reading, member reflection, and transparency in analytic decisions. Data adequacy was justified based on information power [17]: the study's focused aim, specificity of the sample, and depth of discussion yielded rich, saturated data without new themes emerging after the fourth focus group. These strategies were employed to enhance interpretive credibility rather than to imply objectivist validation of findings.

Ethical considerations

Ethical approval was obtained from the Bursa Uludağ University Health Sciences Research and Publication Ethics Committee (Session 2025-05, Decision No. 4, 28 May 2025). Written institutional permissions were secured before data collection. Participants provided written informed consent and were reminded of confidentiality limitations inherent to group settings. All personal identifiers were removed during transcription; pseudonyms were assigned. Data were stored on password-protected drives accessible only to the research team.

Results

This study conducted focus group interviews with 20 participants from two different age groups (18–30 years and 31–50 years) to gain an in-depth understanding of how algorithms were perceived to influence] individuals' decision-making processes, perceptions of identity, and sense of free will. The data obtained through a semi-structured interview were analyzed using a thematic analysis method. As a result of the data analysis, five main themes and ten sub-themes were identified under these categories.

The emerging themes illustrated participants' accounts of the multilayered nature of algorithmic influence on individuals, including manipulation, loss of autonomy, identity shifts, alienation, and emotional responses to these processes. The direct statements of participants provided empirical material through which the concept of algorithmic alienation was analytically developed.

Theme 1. awareness of content steering

This theme focuses on participants' emerging awareness and sense-making processes regarding algorithmic influence, rather than on experienced loss of autonomy or identity transformation. This theme reflects participants' growing awareness that the digital environments they engaged with were not neutral spaces of exploration. What was initially experienced as a natural process of personal discovery gradually revealed itself as a structured and directive exposure system shaped by algorithmic selection. Participants reported recognizing that what they perceived as "their own choices" were often the result of subtle external guidance. This emerging awareness led to questions about autonomy, authenticity of preference, and the origin of desire.

Sub-theme 1.1. perceiving the source of content

Participants described a shift from believing that their digital engagements were self-directed to recognizing that algorithms were determining what they were exposed to. Although early interactions felt spontaneous, the repetition of similar content signaled to participants that there was an external organizing mechanism shaping what they saw and engaged with. This realization prompted a re-evaluation of how much of their digital behavior—and by extension, their preferences—originated internally.

> *"At first, I thought everything was completely random. However, I realized I kept getting similar content right afterward whenever I watched a video. It's as if someone else is deciding what I should watch." (F, 24).*
> *"I used to love discovering new music on Spotify. Now I realize even the things I think I discovered were pre-selected for me." (M, 28).*
> *"I try to watch something different on YouTube, but I always see the same content all over my screen. I'm no longer sure whether I'm choosing what I want or accepting what's being presented to me." (F, 30).*
> *"When I click on something on Instagram, I instantly get flooded with similar suggestions. You reach a point where you don't even realize that you've lost touch with your taste." (M, 25).*

This sub-theme illustrates an early interpretive moment of algorithmic alienation: the point at which individuals begin to trace the source of their perceived choices back to external systems rather than internal intention. The

boundary between choosing and being shown becomes perceptible. Autonomy is described as being gradually experienced as constrained], rather than suddenly removed, through habituated exposure patterns.

Sub-theme 1.2. realization of the directive nature of content

Participants did not merely recognize that content was selected for them, but also described how repeated exposure began to shape their moods, interests, and inclinations. The algorithmic system was understood not only as suggestive but also as formative. Over time, participants observed themselves adopting preferences and desires that they later questioned as being fully their own.

> *"I was searching for camping gear, and suddenly, I got excited about camping. However, then I thought about it and realized I don't like camping that much. I just got excited because I kept seeing camping ads everywhere." (M, 35).*
> *"Initially, I just wanted to stay updated with the news. But over time, I began to see only a certain type of news. It makes you feel as if there is no other world out there." (F, 42).*
> *"While shopping online, I realized that when I see the same item repeatedly, it starts to feel like I need it. But in fact, it's not a need—it has just become a habit." (F, 26).*

This sub-theme reflects a transition from awareness of external influence to recognition of internal change. Participants described a subtle displacement of desire]: repetition creates familiarity, familiarity simulates preference, and preference is mistaken for identity. This signals the beginning of a psychological negotiation between "who I am" and "what the algorithm encourages me to be."

Theme 1 demonstrates the emergence of awareness that algorithmic systems influence not only what individuals see, but also how they understand their own preferences. This marks one possible entry point into Algorithmic Alienation: a gradual shift from presumed agency to a recognition of guided experience.Theme 2. The Erosion of the Perception of Freedom.

Theme 2. the erosion of the perception of freedom

This theme captures participants' perceptions that their choices within digital environments were described as being shaped by algorithmically constrained option sets. Despite the experience of abundant content, participants reported that their choices operated within invisible but highly structured boundaries, which participants described as contributing to a sense of diminished autonomy over time.

Subtheme 2.1. the illusion of choice amid algorithmic steering

This subtheme focuses on participants' interpretations of choice availability, rather than on habitual decision-making patterns or identity-related consequences.

Participants described experiencing an illusion of freedom in their digital decision-making processes. Although platforms appear to offer numerous alternatives, the content pool was perceived as increasingly narrow. The repetition of similar recommendations suggested that selection was experienced as not fully self-directed but as increasingly anticipated rather than algorithmically anticipated. As a result, participants began to question whether their preferences were consciously chosen or shaped through exposure.

> *"There are hundreds of videos on YouTube, but they all feel the same. It looks like I'm being offered different options, but they're all saying the same thing." (F, 19).*
> *"While browsing the Explore page on Instagram, I realized I kept seeing the same kind of content. I thought I was choosing, but I was just circling the same things." (F, 22).*
> *"It's the same with shopping sites. It seems like there are many options, but it's always curated just for me. I don't even know if I'm free." (M, 45).*

This subtheme highlights the discrepancy between perceived and actual freedom. While choice appears open, the algorithmic structuring of available options creates a controlled environment that participants only recognized retrospectively. The psychological consequence described by participants is a gradual destabilization of self-trust in one's own preferences — a foundational marker of algorithmic alienation.

Subtheme 2.2. diminishing decision-making habits

Participants described a shift from intentional, reflective decision-making to automatic acceptance of algorithmic suggestions. Cognitive engagement and personal evaluation were described as weakening over time, replaced by passive consumption patterns. Cognitive engagement and personal evaluation weakened, replaced by passive consumption patterns.

What had once been deliberate choice became a default behavioral rhythm, often accompanied by emotional fatigue and reduced motivation to evaluate alternatives.

> *"Choosing a movie on Netflix sometimes feels like torture. I just go with whatever they suggest. I don't have the energy to make my own decisions anymore." (F, 27).*

"I used to research things before buying. Now I just go with whatever pops up. I consume quickly and move on." (M, 38).
"I watch everything that shows up on TikTok. It scrolls so fast that I don't even have time to think." (F, 23).

This subtheme illustrates participants' accounts of the erosion of cognitive agency. As decision-making shifts from reflective to reactive, individuals learn to "let the algorithm decide," not through coercion, but through cognitive exhaustion and learned convenience. The self gradually adjusts to a mode of effortless acceptance, which participants associated with processes later described in Theme 3.

Theme 2 can be understood as reflecting a transitional pattern in algorithmic alienation, following the guided exposure described in Theme 1, toward experiences of reduced autonomy in everyday decision practices. The perceived abundance of choice masks the narrowing of volitional control, while convenience-driven habits weaken self-determination mechanisms.

Theme 3. transformations in identity and self-perception

This theme describes how prolonged interaction with algorithmically curated content were described as influencing participants' sense of self and personal identity. As exposure accumulated, participants began to notice that shifts in tastes, interests, and values were often not the result of intentional exploration, but were described as emerging through algorithmically sustained repetition and emotional resonance. This recognition prompted questions such as "Is this really me?" and "Where is this version of myself coming from?", signaling deeper identity-level alienation.

Subtheme 3.1. shifts in areas of interest

This subtheme focuses on perceived shifts in interests and preferences, rather than on experiences of identity rupture or emotional disconnection. Participants described experiencing gradual changes in their preferences and areas of interest, many of which initially felt self-directed. However, upon reflection, these shifts were described as resulting from repeated exposure rather than deliberate choice. What began as curiosity or momentary attention evolved into a sense of ownership over interests that did not align with participants' prior identities. This shift introduced a subtle tension between authentic self-concept and algorithmically influenced identity formation.

"I was never the type to watch fitness videos. But now they keep appearing, and I feel like I've always been interested in them—even though I know I wasn't." (F, 29).
"I started watching videos about topics I didn't care for at first. Over time, I couldn't tell if the interest became real or if it was just due to repeated exposure." (M, 21).
"I used to love reading books. Lately, I only read the ones trending on TikTok. I'm not sure if they're truly my choices or just what's being placed in front of me." (F, 32).

This subtheme reflects participants' accounts of how repetition contributed to identity shaping. Interests appear to originate internally, but are externally cultivated through sustained exposure. The result is a blurring of authorship over personal identity—participants cannot clearly distinguish between self-chosen and algorithmically shaped aspects of themselves. This can be understood as a threshold-like experience of identity alienation.

Subtheme 3.2. experiencing identity alienation

For some participants, shifts in interests were described as developing into a deeper sense of self-displacement. As new habits, desires, and values formed, individuals began to evaluate themselves in contrast to their previous identities. This comparison was described as eliciting emotional discomfort and destabilization, accompanied by a perceived loss of connection to a stable, coherent sense of self. Participants described feeling as though their identities had been subtly reshaped by external influences.

"I used to live a much simpler life. Now I constantly watch extravagant lifestyles and feel like I should live that way too. But deep down, I know that's not who I am." (F, 35).
"I was someone who used to be close to nature. Now I'm all about tech, fashion, and brands. I don't even know when or how I changed." (M, 31).
"I had my unique style. Lately, I've been mimicking whatever is trending on social media. Sometimes I look in the mirror and think, 'This isn't me.'" (F, 28).

This subtheme can be understood as capturing a central aspect of Algorithmic Alienation: moments in which participants described recognizing aspects of the self as foreign. The distance between the past self and the algorithmically shaped self is experienced as a rupture in self-coherence. Identity is no longer experienced as internally authored, but rather as co-constructed with algorithmic influence, leading to emotional tension and existential discomfort.

Theme 3 highlights how participants described digital platforms as shaping identity] not through explicit persuasion, but through repetition-driven internalization.

Shifts in interests were often described as preceding changes in identity. The alienation emerges when individuals recognize themselves as partly shaped by the system, destabilizing the experience of authenticity.

Theme 4. experiencing alienation in the digital environment

This theme describes how participants' ongoing engagement with algorithmically structured digital environments was described as contributing to experiences of self-detachment and behavioral automaticity. Unlike Theme 3, where alienation was expressed at the identity level, Theme 4 reflects an immediate, lived, moment-to-moment experience in which individuals described feeling disconnected from their actions and internal motivations while using digital platforms. Here, alienation was described as being experienced rather than conceptually reflected upon—it was felt in the body, attention, and presence.

Subtheme 4.1. feeling detached from the self

This subtheme focuses on participants' accounts of experiential detachment during digital engagement, rather than on longer-term identity transformations. Participants reported a growing sense of dissociation between their authentic desires and the content they consumed. They described moments in which they observed themselves using platforms without emotional resonance, purpose, or alignment with personal values. Rather than choosing content, they found themselves absorbed into it, leading to a feeling of being "present yet absent." This emotional and cognitive distancing were described as positioning digital engagement as a space in which the sense of self became blurred.

> *"One morning I realized—I spend hours watching videos on Instagram, but none of it is really what I want. It's all what others have chosen to show me." (F, 26).*
> *"Sometimes while scrolling through TikTok in the evening, I ask myself: Do I actually want to watch this, or should I be doing something else? The answer is always the same: I don't know." (M, 42).*
> *"I used to have hobbies. Now, I feel like I'm constantly lost in front of a screen. It's like I've forgotten who I am." (F, 33).*

This subtheme can be understood as reflecting a shift from identity uncertainty (Theme 3) to disconnection at the level of presence. Participants were not only questioning who they had become, but also whether they were actively living their own experiences. The alienation described here was experienced as immediate and embodied: individuals watch themselves watching, rather than participating in their own lives.

Subtheme 4.2. automatic behaviors and routine use

Participants described that their engagement with digital platforms were described as becoming automatic, habitual, and reflexive, often occurring without conscious intention. This loss of intentionality was accompanied by a distorted sense of time and a dulling of emotional response. The digital environment was described as becoming a default space, entered without purpose and exited without awareness.

> *"I grab my phone, and my finger starts scrolling before I even realize it. Next thing I know, half an hour has passed." (F, 24).*
> *"I put something on Netflix, but I don't even pay attention to what I'm watching. I just stare at the screen. It feels like a habit now." (M, 36).*
> *"Whenever I have five minutes free during the day, I reach for my phone. Sometimes I don't even know what I'm looking for." (F, 31).*

This subtheme highlights the emergence of algorithmically reinforced behavioral loops, where habit replaces intention and motion replaces desire. The self becomes mechanized, performing actions without reflective engagement. Unlike Theme 3, where the question was "Am I still myself?", here the question becomes: "Am I the one acting, or is the action happening to me?"

Theme 4 can be understood as reflecting a behavioral and experiential dimension of Algorithmic Alienation, where individuals express a loss of presence, agency, and deliberate engagement while using digital platforms. The self is not only reshaped (Theme 3), but also subdued into automatic participation, described as resulting in a felt sense of detachment from one's own lived experience.

Theme 5. emotional responses and coping strategies

This theme describes the emotional responses that emerged as participants became aware of algorithmic influence, as well as the active strategies they developed in an effort to regain autonomy. Whereas earlier themes reflected subtle shifts in behavior and identity, Theme 5 can be understood as capturing moments of recognition, where participants consciously evaluated their digital habits and described efforts to restore a sense of agency.

Subtheme 5.1. discomfort and growing awareness

This subtheme focuses on participants' emotional reactions and emerging awareness, rather than on behavioral change or resistance strategies. Participants reported encountering a range of emotional responses—including frustration, dissatisfaction, emptiness, and fatigue—as

they recognized the extent to which their digital engagement was described as being shaped by algorithmic systems. This emotional discomfort was described as functioning as a turning point, prompting participants to reflect on the meaning, purpose, and personal value of their time online. In many cases, this awareness emerged suddenly during everyday platform use, producing a moment of internal interruption.

> *"While scrolling through Instagram, I suddenly stopped and thought: What am I doing? I'm watching other people's lives and forgetting about my own." (F, 23).*
> *"Sometimes while browsing the internet, I feel this strange emptiness. I'm not looking for anything, but I act like I am. Then I get frustrated with myself." (M, 30).*
> *"No matter how much I watch, nothing changes. I've realized this now, and I'm trying to pull myself back a little." (F, 34).*

This subtheme illustrates how participants described affective signals (boredom, emptiness, irritation) as cognitive alarms, prompting recognition of alienation. Emotional discomfort does not merely reflect dissatisfaction—it was described as marking the beginning of re-autonomization, signaling the emergence of critical awareness.

Subtheme 5.2. resistance and search for alternatives

This subtheme centers on participants' accounts of intentional coping and resistance practices following heightened awareness. In response to this awareness, participants described deliberate strategies to reclaim autonomy. These strategies included restricting platform use, avoiding algorithmically recommended content, and seeking out self-selected sources. Such actions were described by participants as reflecting attempts to reassert agency, where individuals attempted to restore intentionality in their digital behaviors and reconstruct a sense of authorship over their identities and time.

> *"I try not to watch recommended videos. I make an effort to find and choose what I want to watch." (F, 25).*
> *"I deleted TikTok. It was constantly stealing my time. Now I look at my screen a lot less." (M, 41).*
> *"I don't read the suggested news on social media anymore. I choose which news site I want to read. It gives me more of a sense of control." (F, 28).*

This subtheme illustrates that Algorithmic Alienation is not a purely passive condition. While participants may initially feel guided, shaped, or displaced by algorithmic systems, they also develop adaptive and resistant practices. These responses show attempts to reclaim temporal control, intentionality, and identity coherence, demonstrating that alienation also generates agency-restorative potentials.

Theme 5 suggests that emotional discomfort played an important role in participants' accounts of the transition from passive algorithmic conditioning to conscious resistance. Participants' coping strategies highlight that while digital environments may influence identity and behavior, individuals described remaining capable of reflecting on and reshaping their relationship with these systems.

Across the five themes, participants' accounts illustrated a patterned yet varied set of experiences related to algorithmically mediated digital environments. These accounts ranged from emerging awareness of content steering and perceived constraints on choice, to shifts in identity, moments of experiential detachment, and emotional responses that at times prompted reflective or resistant practices. Taken together, the findings portray Algorithmic Alienation not as a uniform or linear process, but as a constellation of subjective experiences through which participants made sense of agency, selfhood, and autonomy in their everyday digital lives.

Discussion

The findings of this study suggest a notable shift in how individuals relate to the flow of digital content. Although participants initially believed that they were making choices based on their own free will, they described gradually realizing that their decisions were guided within a limited set of algorithmically offered options. Over time, habitual decision-making was described as diminishing, areas of interest were described as being reshaped by external influences, self-perception became increasingly blurred, and reflexive, automated consumption patterns were reported to emerge— collectively contributing to a disruption in personal coherence. The common thread across these experiences was the sense that an external mechanism was perceived as influencing both individuals' choices and their sense of self, giving rise to an internal disconnection.

These findings do not neatly align with any single construct in the existing literature. Concepts such as digital addiction, digital fatigue, and algorithmic filter bubbles capture specific dimensions of the phenomenon but do not fully account for how algorithm may shape individuals' perceptions of freedom, selfhood, and internal control.

At this point, it is important to clearly delimit the scope of the concept of Algorithmic Alienation. Within the context of this study, the concept is not intended to encompass broad phenomena such as excessive digital use, addiction, or digital fatigue. Rather, it refers to a

more narrowly defined conceptual space that focuses on individuals' subjective experiences within algorithmically structured digital environments. In this sense, Algorithmic Alienation captures experiences of diminished autonomy, identity ambiguity, and self-detachment that emerge as individuals become aware that their preferences, interests, and self-perceptions are being shaped by external algorithmic mechanisms. In this respect, the concept differs from constructs such as digital addiction or digital fatigue, which primarily emphasize usage intensity or emotional exhaustion; instead, it offers a more specific framework centered on subjective meaning-making processes and transformations in the experience of the self.

For example, the concept of digital addiction [18] refers to compulsive and uncontrolled engagement with digital technologies, particularly social media and the Internet. Its primary focus lies in the quantity of use and its disruption of daily functioning. In contrast, algorithmic alienation concerns less the amount of use and more the ways in which individuals' sense of choice, identity, and agency may become alienated. The issue is not primarily overuse, but rather experiences of being guided and shaped without explicit or conscious awareness.

Digital fatigue [19] describes the emotional, mental, and physical exhaustion caused by constant connectivity and digital overload, often resulting in weariness and burnout. However, in algorithmic alienation, the central issue is described as being less about fatigue and more about externally influenced shifts in identity, interests, and decision-making mechanisms, which may contribute to a deeper sense of disconnection from the self. While digital fatigue captures emotional exhaustion, algorithmic alienation can be understood as involving a disruption at the level of identity.

The notion of filter bubbles, introduced by Pariser (2011), explains how individuals are exposed primarily to content that confirms their existing worldviews, reducing informational diversity [11]. Filter bubbles focus on restrictions in information flow but tend to overlook disruptions in individuals' relationships with identity and autonomy. Algorithmic alienation, by contrast, places greater emphasis on alienation not only from information but also from the self, identity, decision-making processes, and free will. Thus, while filter bubbles operate mainly at a cognitive level, algorithmic alienation can be understood as encompassing cognitive, emotional, and identity-related dimensions, suggesting a multi-layered psychosocial process.

Zuboff's concept of surveillance capitalism (2019) [20] describes how personal behaviors are monitored and transformed into economic value. Surveillance capitalism primarily addresses macro-level economic and political dynamics. Algorithmic alienation, however, is more centrally concerned with micro-level psychological and identity-based transformations. The issue here is not simply how data are monetized, but how algorithmic infrastructures may shape decision-making, identity, and will, potentially contributing to experiences of drifting away from one's authentic self.

Similarly, social media fatigue refers to the mental and emotional exhaustion caused by social media use, often prompting withdrawal [21]. Algorithmic alienation, however, is not limited to experiences of platform fatigue. It can be understood as describing a deeper psychosocial process in which individuals may experience estrangement from their own digital behaviors, report losing touch with their authentic identities, and begin to question their sense of agency and freedom of choice.

Although individuals may believe that they act freely in digital environments, they were described as operating within relatively narrow frameworks structured by algorithms [3, 11]. As they navigate what appears to be a vast landscape of choice, they may in practice move within a more tightly bounded field of pre-selected options. Over time, algorithmic content streams were described as contributing to the reshaping of users' interests, thought patterns, and lifestyles, at times producing a perceived split between the authentic self and the digitally constructed identity [22].

Prolonged algorithmic guidance was described as dulling individuals' decision-making mechanisms and contributing to reflexive, automatic behavioral patterns [23]. Participants described ceasing to engage]in active selection, instead reporting a tendency to gravitate toward pre-offered content. Decision-making was described as shifting from reflective consideration to habitual, impulsive, or convenience-based acceptance, which may contribute to cognitive inertia [19].

Furthermore, participants described struggling to distinguish between their internal desires, personal values, and externally induced preferences— a pattern that can be interpreted as echoing the classical notion of alienation. As Marx (1844) described alienation as estrangement from one's labor or its products, algorithmic alienation can be understood as involving estrangement from one's digital identity, decisions, and behaviors—processes shaped not by industrial systems but by invisible algorithmic infrastructures.

Participants' realization that they were acting within pre-structured algorithmic boundaries was described as eroding their sense of free will, at times rendering choice itself as an illusion [3, 11]. As perceived freedom was described as weakening, individuals reported experiencing loss of control, reduced capacity for critical reflection, and an awareness of being guided by external systems. The result was described as an existence that appears autonomous yet is perceived as Being subtly directed.

Algorithmic curation was described as gradually contributing to shifts in individuals' interests, values, and identity components. Once people became aware that what they assumed were self-generated preferences may have been shaped by algorithmic exposure, they reported experiencing identity ambiguity and detachment from the self [20, 22]. The distance between the authentic self and the digitally performed identity was described as widening, potentially disrupting self-coherence. Participants' statements such as "This isn't me" can be interpreted as indicators of deepening identity alienation.

Continuous exposure to algorithmic recommendations was described as fostering reflexive, automatic patterns of engagement [23]. Individuals reported reducing deliberate choice-making and instead described engaging in more passive forms of consumption, prioritizing ease and immediacy over reflection. This shift was described as undermining their capacity for critical evaluation and contributing to the replacement of intentional decision-making with passive compliance [19].

As these patterns became more noticeable, individuals reported beginning to question their digital consumption behaviors, time use, and shifting interests. These moments of reflexivity were often described as evoking discomfort, restlessness, and a sense of loss of control [20]. Participants described becoming aware of algorithmic influence while simultaneously finding it difficult to resist. This paradox was described as giving rise to emotional alienation, in which users reported feeling estranged not only from the content they consume but also from their own digital presence.

Rather than implying a deterministic outcome, algorithmic alienation can be understood as referring to a multi-layered psychosocial process through which individuals' perceptions of freedom, identity coherence, and decision-making capacity may become eroded under sustained algorithmic influence. It suggests that users are not merely interacting with technology but may also experience being shaped by it in ways that can compromise] personal authenticity.

In this sense, while concepts such as digital addiction [18], digital fatigue [19], and filter bubbles [11] each illuminate parts of the phenomenon, none fully capture this complex psychosocial rupture. To address this conceptual gap, the present study proposes and empirically grounds the construct of Algorithmic Alienation—a process in which individuals, under sustained algorithmic influence, may experience a weakening of connection with their authentic preferences, identities, and intrinsic agency in digital environments.

Below is the conceptual model developed from the empirical findings. The model is intended to illustrate how algorithmic structures may shape individuals' psychological experiences in digital environments. It offers an interpretive framework rather than a deterministic sequence through which algorithmic mechanisms are linked to cognitive, behavioral, and identity-related processes described by participants as contributing to the broader phenomenon of Algorithmic Alienation.

Algorithmic exposure was described as often beginning with personalization, repetition, default recommendations, and socially reinforced cues (e.g., likes, trends, popularity indicators). These mechanisms were described as narrowing the perceived option set and directing attention toward specific content pathways. Over time, users reported experiencing reduced deliberation, increased automaticity, and a weakening of decision-making habits. Repeated exposure was described as contributing to shifts in interests and identity components, alongside feelings of detachment from one's authentic self. These changes were often accompanied by emotional discomfort and diminished autonomy. In response, individuals described adopting coping strategies—such as deliberate content searching, avoidance, or restricting platform use—to reassert a sense of agency.

This model brings together the interplay between algorithmic influence, psychological mechanisms, and identity-related outcomes, providing a theoretical scaffold for understanding Algorithmic Alienation as an emergent and multi-dimensional experience (Fig. 1).

Conclusion

This study demonstrates that individuals' engagements with algorithmically curated digital environments are accompanied by subtle yet meaningful shifts in their perceived autonomy, identity coherence, and decision-making processes. Participants reported experiencing an illusion of choice, a gradual weakening of intentional decision-making, shifts in interests that felt externally shaped, and emotional discomfort associated with recognizing the extent of algorithmic influence. These accounts highlight the ways in which algorithmic infrastructures may shape not only what individuals consume but also how they understand themselves within digital spaces.

While existing concepts—such as digital addiction, digital fatigue, filter bubbles, and surveillance capitalism—offer valuable insights into specific aspects of digital life, they do not fully capture the experiential and identity-level disconnection reported by participants. Building on these gaps, the present study empirically refines and specifies the construct of Algorithmic Alienation, conceptualized as a multilayered process through which individuals perceive a diminished sense of agency, identity integrity, and self-directed decision-making under sustained algorithmic influence.

Rather than positioning the concept as entirely novel, this study contributes by grounding it in lived experience and illustrating its psychological mechanisms.

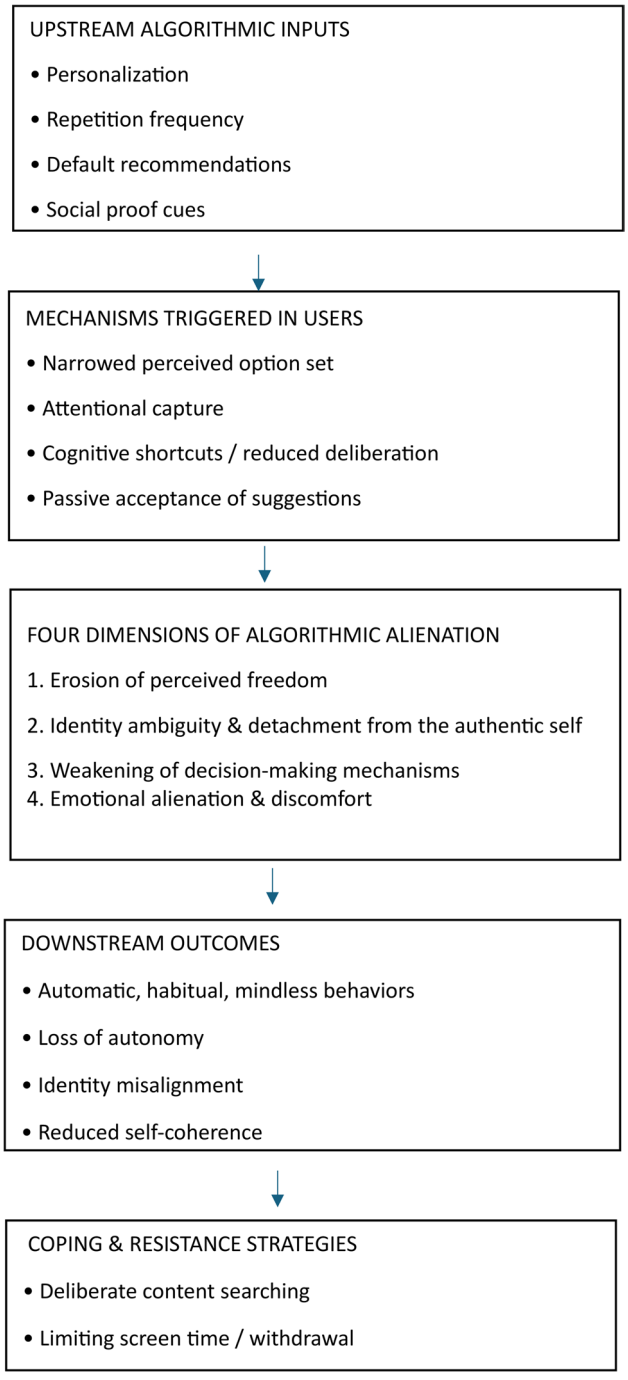


Fig. 1 Conceptual Model of Algorithmic Alienation

Algorithmic Alienation thus provides a framework for understanding how everyday digital interactions may produce internal tensions between authentic desires and externally steered behaviors, expanding current theorization on digital subjectivity and autonomy.

Future research should explore how Algorithmic Alienation manifests across different cultural contexts, platform types, and age groups. Additionally, examining individuals' strategies for resisting or mitigating algorithmic influence may help illuminate pathways toward preserving autonomy in increasingly curated digital environments. Taken together, these findings underscore the need to recognize and critically examine the deeper psychological consequences of digitalization in contemporary life.

Recommendations

Although this study offers an empirically grounded formulation of Algorithmic Alienation, broader validation across diverse populations is needed. Future investigations should integrate both qualitative and quantitative approaches to examine variations associated with age, socioeconomic background, digital literacy, and platform usage profiles.

Research should also assess the potential impacts of Algorithmic Alienation on psychological well-being, life satisfaction, identity development, and interpersonal relationships. Longitudinal designs would be particularly valuable in identifying whether these effects intensify, stabilize, or diminish over time.

In applied contexts, interventions aimed at enhancing algorithmic literacy—such as digital awareness workshops, reflective media consumption programs, and transparency-oriented interface designs—may help individuals better recognize and navigate algorithmic influence. The development of a psychometrically validated Algorithmic Alienation Scale is also recommended to facilitate empirical testing, support cross-cultural comparisons, and strengthen the conceptual framework introduced here.

Limitations

Several limitations should be acknowledged. First, this study was based on a relatively small and demographically limited sample of 20 participants from two age groups (18–30 and 31–50). The findings therefore cannot be generalized to other age groups, cultural contexts, or populations with differing levels of digital engagement.

Second, data were collected through focus group interviews. While this method enabled rich interactions and collective meaning-making, it may also have restricted the expression of more personal or sensitive experiences. Social desirability dynamics may have shaped how participants presented their digital behaviors.

Third, the conceptualization of Algorithmic Alienation is derived from subjective accounts. Although phenomenological depth strengthens ecological validity, it may limit replicability and the extent to which causal inferences can be drawn. Future studies should therefore complement subjective data with behavioral measures and longitudinal tracking to enhance robustness.

Appendix A. Condensed codebook and coding structure

Theme 1: Awareness of Algorithmic Content Steering			
Theme	**Code**	**Definition**	**Example Quote**
Code 1.1	Perceiving the Source of Content	Recognition that content flows are algorithmically structured rather than random	"I realized I kept getting similar content… It felt like someone else was deciding for me
Code 1.2	Realizing the Directive Nature of Content	Understanding that algorithms shape preferences, habits, and perceived needs	"I saw camping ads everywhere and suddenly felt interested—but it wasn't really my thing."
Theme 2: Erosion of the Perception of Freedom			
Code 2.1	Illusion of Choice	Feeling that the variety of options is confined within algorithmic boundaries	"There are hundreds of videos, but they all look the same."
Code 2.2	Weakening of Decision-Making Habits	Growing reliance on automatic acceptance of recommended content	I just pick whatever Netflix recommends. I don't think anymore
Theme 3: Transformations in Identity and Self-Perception			
Code 3.1	Shifts in Areas of Interest	Interests and routines being shaped by repeated algorithmic exposure	"I feel like I've always been into fitness videos—even though I wasn't."
Code 3.2	Identity Alienation	Feeling detached from one's authentic self due to algorithmically guided identity elements.	"I look in the mirror and think, 'This isn't me.'"
Theme 4: Alienation in the Digital Environment			
Code 4.1	Feeling Detached from the Self	Experiencing psychological distance from authentic preferences and values.	"I watch things that don't interest me. It doesn't feel like my choice."
Code 4.2	Automatic and Habitual Behaviors	Engaging in digital consumption reflexively and without intention.	"I scroll without realizing it. Suddenly half an hour is gone."
Theme 5: Emotional Responses and Coping Strategies			
Code 5.1	Discomfort and Critical Awareness	Emotional discomfort caused by recognizing algorithmic influence.	"I suddenly thought: What am I doing here? None of this is truly mine."
Code 5.2	Resistance and Search for Alternatives	Attempts to regain autonomy by rejecting algorithmic suggestions.	"I try to search for things myself and avoid what the app suggests."

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Authors' contributions
**Burcu Arkan: ** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing - Original draft, Writing -Review & editing. **Yalçın Kanbay: ** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing - Original draft, Writing -Review & editing. **Aysun Akçam: ** Conceptualization, Data curation, Investigation, Methodology, Writing - Original draft, Writing -Review & editing.

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Data availability
The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
This study was performed in line with the principles of the Declaration of Helsinki and approved by the Health Sciences Research and Publication Ethics Committee of Bursa Uludağ University (2025-05 / Decree No: 4). Written informed consent was obtained from participants. Participation in the study was voluntary and participants were informed about the study before answering the questionnaire. The information included details of the purpose and implementation of the study and a statement that participants could stop answering the questionnaire at any stage.

Consent for publication
N/A.

Competing interests
The authors declare no competing interests.

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