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Life Thinning and Gaming Disorder: A Longitudinal Qualitative Registered Report

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Abstract

The academic debates regarding the psychiatric relevance of gaming disorder continue largely because the lived experiences of treatment-seekers remain mostly unstudied. This registered report addresses the above research gap with a longitudinal design that pursues a comparative descriptive understanding of how intensive gaming experiences evolve in both clinical and non-clinical life situations. Accompanied by a rich health survey, interpretative phenomenological analysis was adapted to understand in-depth interview data from treatment-seeking (n=5) and esports-playing (n=4) participants, the latter of which did not experience any gaming-related health problems. The interviews were carried out as a 1-year follow-up. The study finds intensive relationships with gaming to be experienced through multidimensional cyclicity. For treatment-seekers, this manifests as a shift in problem processing that involves a search for new gaming and life meanings; meanwhile, for esports-playing participants, the meanings of gaming evolve and can rapidly adapt to unexpected life events. We propose *life thinning* and *resilience integration* processes as working models that can help better describe and theoretically explain how some individuals end up seeking gaming-related treatment, whereas for others gaming continues to be part of their identity and resilience. The findings call for more qualitative registered reports with treatment-seekers and other intensively gaming people from different cultures to better understand the spectrum of intensive gaming phenomenologically—and specifically, what it means for people to seek treatment for their gaming.

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Introduction

The scientific literature on *gaming disorder* has accumulated rapidly after the American Psychiatric Association's (2013) formal call for more related research in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) and its effective nosological formalisation by the World Health Organization (2022) in the 11th edition of the *International Classification of Diseases*. Nevertheless, qualitative research with relevant treatment-seeker data remains scarce. Arguably, the academic debates regarding the psychiatric relevance and validity of gaming disorder continue largely because the lived experiences of treatment-seekers remain mostly unstudied (see Ferguson & Cowell 2020; van Rooij et al. 2018). Idiographic, in-depth data from people who have sought help for their gaming are much needed to better understand the contexts, reasons, and problems that have so far contributed to or otherwise been associated with gaming-related treatment-seeking.

Phenomenological approaches to psychiatry have been given increasing attention as methodological solutions not only to gaming disorder disputes but other psychopathological questions as well (e.g., Aho 2008; Larsen et al. 2022; see Treadway 2023). This registered report addresses the above research gap with a longitudinal design that pursues a comparative descriptive understanding of how intensive gaming experiences evolve in both clinical and non-clinical life situations. Whereas our epistemological curiosity aligns largely with *genetic phenomenology* in the qualitative psychiatric literature—understanding the genesis of meanings as part of one's evolving history of experiences (for a conceptual review, see Steinbock 2019)—we do not pursue phenomenological analysis “for its own sake” (see van Maanen et al. 2016). Rather, we approach phenomenologically relevant knowledge primarily with pragmatic goals: to explore how the varying origins and evolutions of gaming-related meanings might help with building better models and theoretical hypotheses for clinically and non-clinically significant types of intensive gaming.

Programmatic Registered Report

The registration of the present study was reviewed as part of our baseline research (Karhulahti et al. 2022a), which sought to understand the experiences and meanings of playing videogames in two groups: those who have sought related treatment ($n=6$), and those who play esports games four or more hours daily without self-identified gaming problems ($n=10$). In that study, based on a round of in-depth interviews, we found experiences of disorder to derive from gaming interfering with what one wants to be, do, and have throughout life, whereas the experiences of intensive esports play derived from gaming being integrated into self throughout life. The present work was planned as a 1-year follow-up interview study with the same participants. To be clear, although our data generation, analyses, and goals were registered as part of the Stage 1 review of the original publication (Karhulahti et al. 2022a), the current study is independent of it with a separate research question and new data. From this point onwards until the Results section, the text was prewritten at Stage 1 in 2021 with some changes implemented during the final writing and peer review in 2023.

Our nonconfirmatory research question concerns phenomenological development in time. Due to the difficulties and expenses of longitudinal research, temporal changes such as cyclicity and episodic play patterns have been relatively little studied among treatment-seekers and competitive players and remain topics of debate (e.g., Dullur & Starcevic 2018; see Lobel et al. 2017). The research question asks:

RQ: How do the experiences and meanings of playing videogames—shaped by the individuals' diverse types of sociocultural contexts—evolve in those with related health problems (as defined by treatment-seeking) and those who play esports games several hours per day (while self-reporting no related health problems)?

Some previous longitudinal research regarding the stability of gaming-related health problems have been carried out over the years. Three studies (Colder Carras 2015; Mihara & Higuchi 2017; Richard et al. 2020) that review such findings report the results to be diverse, and gaming problems to persist in survey studies with up to an 84% stability rate over two years. However, high-powered studies seem to imply that many such health problems are cyclical and do not continue for 12 months, which is the time suggested

for a gaming disorder diagnosis to be assigned by the WHO (e.g., Strittmatter et al. 2016; Thege et al. 2015; Weinstein et al. 2017). Although other longitudinal findings likewise indicate gaming to be an evolving activity in people's lives (e.g., Götzenbrucker & Köhl 2009; Karlsen 2013; Karhulahti 2020), such changes often take longer than 12 months to surface. Therefore, we set the following qualitative hypothesis.

QH: We expect participants with gaming-related health problems (as defined by treatment-seeking) to talk about their gaming experiences in different contexts of meaning after 12 months. We do not expect the esports-playing participants (who self-report no related health problems) to express different meanings after 12 months.

All participants were recontacted approximately a year (11–13 months) after the first interview in the baseline study (Karhulahti et al. 2022a). This allowed us to carry out analyses in the same methodological setting with a new focus on temporal changes. To address temporal changes in health too, we readministered the screening scales, which inquire the participants' gaming and health over the past 6–12 months.

Data and Methods

Following the original study, this work applies interpretative phenomenological analysis methodology (IPA; Smith et al. 2009). Sample sizes are one of the key challenges in longitudinal IPA research (Farr & Nizza 2019; McCoy 2017). Because cross-sectional IPA studies are already based on small in-depth samples, dropouts in longitudinal settings can be detrimental. The risk is further increased by the fact that IPA studies often involve special populations, such as people with medical conditions, which can have a negative impact on retention. We prepared for these challenges by informing our participants of the study's progress between the time points, and specifically, by inviting them to review their interview transcripts and our interpretations of them after the baseline interview, which we hoped would build further transparency and trust.

Following the recommendation of a recent review of 66 longitudinal IPA studies (Farr & Nizza 2019), we took into consideration the potential variation in retention and the subsequent issues of depth and breadth. Due to foreseeable dropouts, we predicted that the second round of interviews would have less participants, yielding two alternative reporting paths. First, if four or more participants from both groups (total N=8) joined the second round of interviews, we planned to report the work as a standard longitudinal IPA study, considering that N=4 has been a fitting sample size for previous longitudinal IPA research in health psychology (Spiers et al. 2016). However, if only one, two, or three treatment-seekers joined the second round of interviews, we planned to report the work as an in-depth longitudinal case study or series, following the conventional medical format. To our knowledge, longitudinal IPA case studies of gaming treatment-seekers do not exist yet (but see Benarous et al. 2019); thus, the wealth of phenomenological data arising even from a small longitudinal sample of actual treatment-seeking participants would have made an important contribution to the literature.

After recontacting all participants for our 1-year follow-up, five treatment-seekers (83%) and four esports players (40%) responded positively. This allowed us to pursue the first path (N=9) and carry out a comparative IPA study. We used the Phenomenology of Play Follow-up (POP-UP) interview frame that is similar to the one used in the baseline study but also considers temporal phenomenological changes in the light of the interviewees' previous answers (<https://osf.io/hg3be>). All interviews were carried out remotely using Zoom software. MS and VMK—who are familiar with gaming disorder research and knew all participants from the previous study—served as interviewers together in all interviews, except for one interview that was conducted by VMK alone. On average, the recorded time of the interviews was 90 minutes (74–130 minutes). The audio was transcribed into text verbatim by an external transcriber (see Acknowledgements), after which they were cleaned of personal identifiers and submitted to the Finnish Social Science Data Archive for storing and reuse. Contextualizing survey data were collected using the same instruments as in the baseline study and stored in the project's OSF page (<https://osf.io/7v5bj/>).

Analysis

The analysis followed the established IPA tradition (Larkin & Thompson, 2012; Smith, 1996; Smith et al., 1999; Smith & Osborne, 2007) with small modifications. All analyses were carried out in the language of the original transcripts, but thematic and other conceptual entities were developed in English to facilitate reporting. Instructions were developed to facilitate the coding and interpretation of temporal themes, following the research design below (see Supplement 1). An epistemological difference from IPA, as implied in the introduction, is our more pragmatic and realistic approach, which is motivated by a desire to improve theoretical understanding of gaming-related health.

The focus of the analysis was intended to be on experiential changes, i.e. the structural connections between cases are assessed based on how experiences have evolved or transformed, rather than what they are at the time of the follow-up interview. Four different types of change have been previously suggested as findings in longitudinal IPA research: narrative changes (new reported events), participant reinterpretations (old events restructured by the interviewee), researcher reinterpretations (old events restructured by the researcher), and the witnessing of no changes (McCoy 2017). We were also prepared to find and report other types of changes if they occurred, and indeed we witnessed one unlisted type of change: changes in how participants perceived themselves and the world. This change was not coded but is strongly present in our thematic findings below (see especially the discussion of existential feelings).

To carry out the above analysis, we planned to use the data from the first round of interviews as a point of comparison. For each participant involved in both interviews, a profile was planned based on their first interview (descriptive biographic summary with a phenomenological overview in table form; see Karhulahti et al. 2022a). The second interview was analysed against this profile. In the second interview, we also planned to share the profile verbally and visually with the interviewee to triangulate our interpretations (Birt et al. 2016). We use this member checking critically, i.e. the commentaries provided by the interviewees are analysed with equal status to other transcript data. The interviewees were also invited to review their follow-up transcripts. A summary of the analytical plan is provided below.

- a) After each interview, the interviewers (MS and VMK) write down notes and discuss their tentative interpretations of the participant's evolved meanings and meaning-making related to gaming.
- b) In parallel with the interviews, interviewing (MS) and non-interviewing (JV) authors conduct idiographic coding for the interviews independently and draft initial themes. Atlas.TI and Excel are used for this process.
- c) Whenever two interviews have been analysed, the coders meet with a non-coding researcher (VMK/RK) to collectively negotiate an agreement upon participant-specific themes.
- d) After all interviews have been analysed and participant-specific themes have been agreed upon, the team meets for final discussions. Each author rereads the transcripts closely and brings their own proposals for subordinate themes for both participant groups for negotiation. The results of this study are finalised in this meeting.

The above plan was followed by the research flow below (Table 1). In a slight deviation from the original plan, both VMK and RK were involved in each of the participant-specific discussions and in the development of the subordinate themes. As a further deviation—resulting from peer review feedback in the baseline study (Chambers et al. 2022)—we included in the member checking section an inquiry into whether and how the participants' language use had changed during their treatment (first group) or intensive gaming years (second group). Because we had already offered all participants the opportunity to comment on their own themes after the analysis of the baseline study, in these follow-up interviews we asked the interviewees to reflect on our general group-level themes instead. Again, we provided all participants with the opportunity to read their new transcripts and comment on our interpretations. Two participants wished to make use of this opportunity.

Table 1 – Research flow

	August	September	October	November	December	January
Interview	twice	twice	once	once	thrice	
Coding	once	twice	twice	once	thrice	
Meeting	once	once	Once		twice	once

Results

Following the analysis procedure described above (for materials, see Supplement 2), four subordinate themes were identified, two for each group, as follows:

Treatment-seekers

- In the process of healing from past problems, ranging from fear of relapse to confidence in having learnt to regulate
- Attempting to replace meanings previously found in gaming, but also trying to rediscover the enjoyment related to it

Esports players

- Strong attachment to gaming, as an integrated part of self, is resilience
- Gaming identity adapts and evolves

Although the superordinate themes were built on the data in both groups respectively, we highlight that there were major differences between individual cases. In particular, we found that Bruno's and Dan's experiences often fell between both groups despite them belonging to the treatment-seeking group.

Additionally, we were able to identify a supra-theme that surfaced through both groups: multidimensional cyclicity in enjoyment and meaning. To improve readability, we report the participants' reflections of previous conclusions and language elsewhere (Supplement 3). Next, following the original reporting format, we disclose each subordinate theme through individual cases, each of which contains elements from their group-specific themes and supra-themes. For feasibility, we additionally relist relevant numeric changes in survey health scores at the end of each theme (all scales and related data summarised in Table 2, see Tables 3-6).

In the process of healing from past problems, ranging from fear of relapse to confidence in having learnt to regulate (treatment-seeking group)

The treatment-seeking participants were “in the process” of rebuilding their routines after having reflected on the problems that had led them to seek help earlier. Whereas some were still figuring out how to maintain a healthy relationship with gaming, others felt the problems were an ephemeral stage in the past and considered having learnt to regulate their play completely.

Caius' main reason for seeking treatment had originally been a relationship break-up, which he attributed to his inability to stop playing World of Warcraft [WoW]. He specifically stressed having learnt to perceive his gaming from “the viewpoint of others”—experiencing gaming as problematic was not only about oneself, but also about how it affected those close to you and how they felt about it. At the time of the first interview, Caius had stopped playing regularly, and by the time of our follow-up a year later, he had not touched online roleplaying games at all. When he used to play in the past, he felt life was stuck and described himself as a relic in a virtual world. Now he had returned to playing, but this time in a controlled, well-regulated manner.

I'm getting over that trauma. In the past half year, I've learned to play again and to control it. One game, Counter Strike [CSGO], we play with friends now and then, maybe 1–3 matches twice or thrice per week... playing is enjoyable to me in an entirely different way now, as my relationship with it has evolved.

Caius had not talked about the past problems to anyone in a year (his remote treatment had ended by the previous interview). After acknowledging and reflecting on the problem, he systematically changed his environment and habits. Caius highlights his core self-control motivation to be trauma: he remembers clearly how it was to be “stuck” for years and does not want to reexperience that. Then again, he also does not see any risk of the problems returning because he and his relationship with gaming have completely changed:

Table 2 – Changes in gaming-related time use and health scale scores.

	Group	Gender	Weekly gaming baseline/year later	Weekly other baseline/year later	History of being bullied (asked only year later)
Aaron	1	M	56.5h → 26h	72h → 24h	Agree
Bruno	1	M	42.5h → 25.5h	4h → 2.5h	Partly agree
Caius	1	M	15h →	11h →	
Dan	1	M	25h → 35.5h	30h → 25h	Agree
Fredrika	1	F	0h → 0h	5h → 3h	Completely agree
Heikki	2	M	24h → 12h	16.5h → 2.5h	Disagree
Ida	2	F	25h → 24h	6h → 4h	Agree
Kalle	2	M	20h →	12.5h →	
Oona	2	F	47h → 32.5h	5h → 2.5h	Agree

borders = Increased time *italics* = Did not give follow-up survey data

	GAS-7 (0–7)	IGDT-10 (0–9)	GDT (0–4)	THL1 (0–3)	GAD-7 (0–28)	BDI-6 (0–18)	BBDS (0–3)	WA (0–10)	GH (1–5)
Aaron	3 → 3	5 → 3	2 → 1	3 → 3	12 → 24	12 → 12	0 → 0	4 → 7	3 → 4
Bruno	5 → 3	2 → 1	3 → 2	1 → 1	14 → 4	8 → 2	0 → 0	7 → 8	3 → 3
Caius	0 →	0 →	0 →	0 →	0 →	1 →	0 →		3 →
Dan	2 → 1	0 → 0	0 → 0	1 → 0	1 → 1	1 → 0	0 → 0	7 → 9	3 → 4
Fredrika	3 → 0	4 → 1	3 → 0	2 → 1	5 → 3	0 → 0	0 → 0	7 → 10	4 → 5
Heikki	2 → 1	1 → 0	0 → 0	0 → 1	2 → 0	0 → 2	0 → 0	6 → 8	3 → 3
Ida	2 → 1	1 → 0	0 → 0	1 → 0	3 → 5	5 → 8	0 → 0	8 → 8	4 → 4
Kalle	1 →	0 →	0 →	0 →	2 →	1 →	1 →		3 →
Oona	0 → 1	0 → 0	0 → 0	0 → 0	0 → 1	0 → 2	0 → 0	9 → 7	5 → 3

borders = Weakened self-report score underline = Improved self-report score *italics* = Did not give follow-up survey data

Note on gaming problem scales: GAS-7 = Game Addiction Scale (Lemmens et al. 2009). Based on pathological gambling in the DSM-IV. Cutoff 4/7. IGDT-10 = Internet Gaming Disorder Test (Király et al. 2017). Based on ‘internet gaming disorder’ in the third section of the DSM-5. Cutoff 5/9. GDT = Gaming Disorder Test (Pontes et al. 2019). Based on ‘gaming disorder’ in the ICD-11. Cutoff 4/4. THL1 = Terveyden ja hyvinvoinnin laitos [National Institute of Health] one-item gaming problems self-assessment (Salonen & Raisamo 2015; Karhulahti & Koskimaa 2019). No disclosed basis or cutoff. Finnish translations of all scales were used (Männikkö et al. 2015; Männikkö et al. 2019; Karhulahti et al. 2022b).

Note on other scales: GAD-7 = General Anxiety Disorder (Spitzer et al. 2006). Finnish version (Kujanpää et al. 2014). BDI-6 = Beck Depression Inventory 6 (only Finnish version; Aalto et al. 2012). BBDS = Brief Biosocial Screen for Detecting Current Gambling Disorders (Gebauer et al. 2010). Finnish version (Salonen & Raisamo 2015). WA = Work Ability index short form (original Finnish version Ilmarinen 2007). GH = PROMIS General Health (Hays et al. 2017) scale. Finnish version (THL 2021). Bullying = Self-created item was developed. English translation: “The following statement concerns bullying (e.g., at school, work, or home). Please choose the response that best corresponds to your experience. *In my life, I have been bullied in ways that have significantly reduced my physical or mental health* (Likert-5 response scale). Weekly gaming time and other gaming activities were inquired by the question “How much time per week do you spend on the following activities on average?” (translated to English) and six options were provided: computer gaming, console gaming, mobile gaming, watching gaming videos, watching gaming streams, other gaming activities (e.g., modding, forum participation). The first three produced total gaming time; the latter three produced total other gaming time.

[The problem] is permanently gone. When I still occasionally play, my friends sometimes ask me to play one more match; during the problem years I would've easily said "yes" but now I just stop. I respect my schedules, which contribute to my wellbeing, social life, and work ... It has become easy for me to detach [from play].

At the same time, when Caius considers the past negative experiences to be "gone," they also remain fresh in his memory and are integrated as part of his history. In retrospect, he can clearly identify and pinpoint the specific design elements that facilitated the problems. Now, this makes it easy to not "fall into the same trap" again.

It's all about competitiveness [and specifically] climbing the ranks ... even in WoW, which didn't have the ranking system, it had a third-party Elo system that enabled me to play it competitively [and] get addicted to climbing. Having dealt with my trauma, I can now play CSGO and get the competitive pleasure without letting it control me.

Whenever Caius talks about gaming problems now, his self-expression shows confidence of having overcome them, yet concurrently he does clearly refer to his past self as having had the problems, which carry a trauma. A key element of Caius' lived experience is the persistent tension between trauma processing and confidence of having now learned to fully regulate his gaming. With self-confidence and regulatory control over play, Caius also feels that he has found a new way to enjoy gaming.

Table 3 - Participant snapshot of Table 2

	Group	Gender	Weekly gaming 1 st /2 nd round	Weekly other gaming activity 1 st / 2 nd round	Having a history of being bullied
Caius	1	M	15h →	11h →	

	GAS-7 (0–7)	IGDT-10 (0–9)	GDT (0–4)	THL1 (0–3)	GAD-7 (0–28)	BDI-6 (0–18)	BBDS (0– 3)	WA (0–10)	GH (1–5)
Caius	0 →	0 →	0 →	0 →	0 →	1 →	0 →		3 →

Caius did not provide survey data in this follow-up.

**Attempting to replace meanings previously found in gaming,
but also trying to rediscover the enjoyment related to it (treatment-seeking group)**

For treatment-seekers, the cutback in gaming had led to gaps in meaning and free daily time. What had previously been at the top of their value hierarchies and taken up numerous hours of their day was (at least partially) gone. To fill these gaps, the participants were actively reconstructing routines and seeking new meaningful activities, while simultaneously trying to hold on to gaming as a reassembled part of it.

At the time of the first interview, Fredrika had quit gaming completely. In her own words, the problem was that she would always "take gaming as a [evaluated] performance" and there was no other way for her to play. Having left gaming behind, she initially suffered a period of depression but had overcome it the next year. In our follow-up, she felt her "search for the self" (after having stopped her daily 10–16-hour gaming routine at the start of treatment) was still ongoing and this involved exploring new activities and life paths, from friends and studies to hobbies and work. On one hand, she had a clear idea of her new values and what she wanted, but at the same time she was also afraid of wanting because that would come with the risk of not accomplishing what she wants.

Gaming became a problem for me only after I revised my life goals. [But] the more I think "this is how it's going to be", the less it ever goes like that. You cannot control life... Today, I'm trying to look at my future more in terms of general life goals: what do I want to give to the society and other people? [Whenever] I try to be more specific, it never happens and then I just get disappointed.

After having stopping playing, the underlying problems in Fredrika's gaming—need for perfect performance, total control, and emotional distress in the face of failure—also manifested in everyday life.

Just like in gaming, she now wanted to fully control and reach maximal performance in her new non-gaming efforts. Overall, she perceives the situation symptomatic of her own self-development in-process, but also of the pressures set by the society where she lives.

I cannot blame anyone [but myself] but it's also that this is exactly what the society values: accomplishing numerous things... Now I have school, two part-time jobs, and [volunteer] work on the side. Of course it's too many things to have, but then again, I cannot trust that things I have will be accomplished and perfect... I struggle to enjoy any single moment because my brains are always focused on the to-do list.

Being now detached from what was meaningful to her in online roleplaying games, she has reconstructed her daily life into a roleplaying game of its own. Although she was confident that this is a change towards the right direction, it also put her in the middle of two identities where the “new Fredrika” clashed with the gaming “old Fredrika.” Because so much of her experiences, knowledge, and social life took place in the context of gaming, it was difficult to move on to new project lists and abandon the ones related to gaming completely.

I'm sad that my gaming will have to end like this. Currently, I'm in a “let go” mode of my old identity... it must change, and it hurts me. [Gaming] doesn't mean much to me anymore, but it still means and because it does, losing it also hurts.

Reflecting on the above, Fredrika continues to talk about her attempts to learn new, different joys in gaming. She started playing a simulation game that she soon “exhausted” by running multiple parallel accounts and trying to keep “everything alive”—eventually taking five hours of her daily time. After 120 hours of play, she quit in frustration. “How can I relearn to enjoy gaming? Please, tell me how to do that.” Her relationship with gaming remains unstable.

Table 4 - Participant snapshot of Table 2

	Group	Gender	Weekly gaming 1 st /2 nd round	Weekly other gaming activity 1 st / 2 nd round	Having a history of being bullied
Fredrika	1	F	0h → 0h	5h → 3h	Completely agree

	GAS-7 (0–7)	IGDT-10 (0–9)	GDT (0–4)	THL1 (0–3)	GAD-7 (0–28)	BDI-6 (0–18)	BBDS (0– 3)	WA (0–10)	GH (1–5)
Fredrika	3 → 0	4 → 1	3 → 0	2 → 1	5 → 3	0 → 0	0 → 0	7 → 10	4 → 5

Fredrika's gaming problem scores went to zero, except one item in IGDT-10 was still reported to manifest as often: “Have you played to relieve a negative mood (for instance helplessness, guilt, or anxiety)?” She still expressed having problems with gaming “sometimes” (THL1). Her anxiety, general health, and work ability scores improved.

Strong attachment to gaming, as an integrated part of self, is resilience (esport-playing group)

The year between our two interviews had involved various personal struggles for all esport-playing participants, from social and physical health issues to other adverse events. They described in detail how gaming reinforced them during those times. This did not manifest merely as a “support activity” but gaming, as an integrated part of self, was a component of their in-built resilience.

Oona went through many big life changes after the first interview. She lost her job due to unforeseeable world events, broke up with her partner, had people close to her who were going through difficult times—and now she was planning to move to a new city far away to accommodate a new career. In this insecure situation, gaming remained a stable component of life and, according to her, “helps to control reactions, channel out frustrations, keep calm, and keep trying.” What she played, however, had changed from competitive multiplayer to a challenge-heavy single-player game, Elden Ring.

Currently in my life, I appreciate private time ... it's a peaceful daily component to play alone and yell at Elden Ring [yelling in ironic tone]. It gives me tranquillity, blissfulness, as if “there's nothing to worry about, I'm still here, and everything's fine” [and] I feel success by having my body, reactions, and hand-eye- coordination all operating together, highly developed. Then, small problems don't bother me anymore.

Elden Ring is one of the most difficult single-player games in the videogame market. In a situation where Oona’s entire life had been deconstructed in a short period of time, being able to stand up against Elden Ring calmed her down and helped her maintain self-confidence. On top of her other life duties, she was also actively trying to help her loved ones who needed support and participate in volunteer work. At the same time, with the little time that was left for *herself*, it was important for her to beat one of the most difficult videogames available.

Recently, my controller broke ... it frustrated me because I was already far in the game. Then I soon realised how it was possible to predict error [caused by the broken controller] and adapt to the situation ... I felt relaxed, it was all ok, [and] I could keep playing even though my controller was broken because I knew it’s all about myself: how I deal with the problem.

Oona’s experience with the broken controller embodies how she manages and perceives life in general. When asked how she feels when failing in Elden Ring many times in a row—this is part of the game’s mechanical design and happens to all players—she responds: “Then I just stop and go recharge my batteries ... I don’t feel I failed as a player, but it indicates that I need to take care of myself [and] return when I’m capable of focusing better.” For Oona, it was not simply “gaming” (as a separate activity) that helped her cope with current challenges, but rather gaming was part of who she is, how she thinks, and what she *can do*. This symbiosis, over the years, had become a type of life resilience through which she saw the world at difficult times.

Table 5 - Participant snapshot of Table 2

	Group	Gender	Weekly gaming				Weekly other gaming activity		Having a history of being bullied	
			1 st /2 nd round				1 st / 2 nd round			
Oona	2	F	47h → 32.5h				5h → 2.5h		Agree	

	GAS-7 (0–7)	IGDT-10 (0–9)	GDT (0–4)	THL1 (0–3)	GAD-7 (0–28)	BDI-6 (0–18)	BBDS (0–3)	WA (0–10)	GH (1–5)
Oona	0 → 1	0 → 0	0 → 0	0 → 0	0 → 1	0 → 2	0 → 0	9 → 7	5 → 3

Oona’s gaming problem scores remained at zero, except now she answered “sometimes” to the following GAS-7 item: “Have you felt bad when you were unable to play?” Her anxiety score increased by 1 due to now having difficulties in relaxing (GAD-7) and depression score increased by 2 due to “not enjoying things in the same way as before” (BDI-6). Her general health and work ability reduced slightly.

Gaming identity adapts and evolves (esport-playing group)

In the follow-up year, all esports-playing participants had gone through major changes in their gaming habits. While they all kept playing actively and regularly, the titles and how they played had changed. In the contexts of the participants’ gaming histories, these changes reflect an ongoing evolution of gaming identities that remain highly relevant for the participants but may also change over time.

Heikki works in the construction industry. Some weeks after our first interview, he had a physical accident that resulted in half a year’s sick leave. Unable to leave home, his old habit of competitive PlayerUnknown’s Battlegrounds [PUBG] in the evenings transformed into long days of playing from morning to afternoon. Soon after, however, Heikki lost his years-long interest in PUBG and moved on to an entirely different game, New World, which is an online roleplaying game. He had never played the genre before.

It was a completely new experience to me. But it was about playing together, doing things together. That’s what I’ve always liked, and while doing that, being able to rant about world events and everything else—that game had all the right pieces [with] that social life around it.

Locked down in his home, New World became a literal new world for Heikki who suddenly did not have access to any of his regular activities or interests. As he gradually integrated to the communities and routines of the roleplaying game, his competitive motivation—which had been strongly present in PUBG—gradually vanished and was replaced by less goal-oriented social enterprises. It remained important for

him to distinguish between the “friendly interactions” that took place in New World and “actual friends” who he knew personally from everyday interactions.

Those whom I play with; they’re pseudonyms, buddies [sic]. A friend is someone who visits me and comes to see me here at home. My friends remain the same, but yeah, I got plenty of new buddies [from New World]

Heikki moved away from his new gaming phase as rapidly as he had started it. Right after the sick leave was over, he quit his job (he had been planning it a long time ago due to previous disagreements with superiors) and New World too. At the time of the follow-up interview—a couple of months after quitting both of the above—he told he had not played henceforth because he had reached a “cap” that was typical for him.

It seems I played some 2,500 hours of New World. Usually, I get tired of the games at around 3,000 hours. So, this is quite normal for me, getting tired after 2,000 hours ... I don’t know what the next title [will be] but I know that I’ll play driving games meanwhile. [I] don’t invest in them the same way, but they’ll stay with me as long as my legs work.

Heikki’s case illustrates how intensive relationships with gaming adapt to new life situations and evolve along the way. Despite the radical increase in gaming time for an exceptional period, he stresses he has never had problems with control (“I have a clear rule that my computer shuts down at 21, [and] that’s a very clear rule I follow”). The roles of gaming altered by Heikki’s shifting life; he rigidly regulated gaming to not let it alter his life.

Table 6 - Participant snapshot of Table 2

	Group	Gender	Weekly gaming 1 st /2 nd round	Weekly other gaming activity 1 st / 2 nd round	Having a history of being bullied
Heikki	2	M	24h → 12h	16.5h → 2.5h	Disagree

	GAS-7 (0–7)	IGDT-10 (0–9)	GDT (0–4)	THL1 (0–3)	GAD-7 (0–28)	BDI-6 (0–18)	BBDS (0– 3)	WA (0–10)	GH (1–5)
Heikki	2 → 1	1 → 0	0 → 0	0 → 1	2 → 0	0 → 2	0 → 0	6 → 8	3 → 3

Heikki’s gaming problem scores went down to zero, except now he reported “sometimes” to the GAS-7 item “Did you play games to forget about real life?” as well as to the general gaming problem item (THL1). His work ability improved, but now he scored two points for depression due to reporting that “I feel that I won’t ever get over my troubles” (see below for an elaborated discussion).

Supra-theme: Multidimensional Cyclicity in Enjoyment and Meaning

Ultimately, we found the titled supra-theme piercing both groups and tying together many of the patterns that characterise the participants’ experiences. Cyclicity was a fundamental component of all participants’ gaming relationships, and this finding stands partly in opposition to our priors (QH) that expected esports players to hold stable meanings over the year. In fact, many of our “esport players” did not even play esports games anymore, but gaming had become meaningful for them in other (new and old) ways; enjoyment and meaningfulness of gaming surfaced cyclically. As the two subordinate themes specific to this group demonstrate, gaming and related meanings appear to be in constant development; they remain malleable and sensitive to various life events. On the other hand, they simultaneously aligned with how the participants viewed themselves as individuals: enjoyment was experienced through competence, security, and social interaction, yet the “fun factor” often remained in the background of more explicit, game-specific motives.

In both groups, cyclicity manifested in many dimensions. As we witnessed individuals attaching to, reattaching to, and detaching from games in which they have spent (or would spend) hundreds or thousands of hours, such fluctuation occurred in response to changes in health, occupation, or social networks. Multiple participants mentioned that gaming is less important for them in the summer, which could be specific to the Finnish climate where sunlight and warm outdoor temperatures are scarce (e.g., the northern sun stays below the horizon all December). When directly asked about potential future

changes in gaming habits, many named upcoming videogame titles that will immediately increase their gaming time for months after being released for purchase.

As a case example, we briefly zoom back to Heikki. After the intensive period of playing *New World* for 2,500 hours in just half a year, his self-reported general frequency of gaming problems increased from “never” to “sometimes” (THL1). At the same time, his Internet Gaming Disorder Test (IGDT-10) score went down from 1→0 because he no longer reported having played *regardless of negative consequences*; perhaps related to not working during the sick leave. His Gaming Addiction Scale (GAS-7) score went down from 2→1 because he no longer reported *increasing time on gaming nor conflicts over gaming*; these make sense, as he had just quit playing *New World* before the interview—and when he had played, he did it during the daytime when his wife was working so no domestic conflicts would have occurred in those times either. On the other hand, he now reported one new GAS-7 symptom in the past six months, *playing to escape*, which perhaps refers to the painful half a year’s sick leave when he was playing confined to his home. These physical troubles and/or the present unemployment can possibly explain a part of his two new depression points too. The latter observations imply players such as Heikki have the capacity to successfully apply gaming for mood management.

The above patterns add light to the longitudinal fluctuation of gaming and life problems from an idiographic perspective. If people’s relationships with gaming are highly dynamic and cyclically dependent on ever-fluctuating life events—as they are in our data—much care need to be given to be able to efficiently identify what gaming-related behaviours might be symptomatic of clinical relevance and, most importantly, *in what contexts*. Simplifying gaming engagement psychologically as “fun” or “problematic” should be avoided, as it clearly serves multiple functions from comfort and pleasure seeking to need satisfaction—which vary not only between players but also *within* them. Next, we discuss these longitudinal thematic findings in detail and parallel across both groups.

Discussion

In both groups, the experiences we witness come from small “slices of life” yet simultaneously echo specific personal histories. Over several years (including our 1-year follow-up), these histories represent foundational points of origin and transformation that have shaped how and what gaming means to the participants in the present. In Dewey’s pragmatist framework, the “meaning of an object is the changes it requires in our attitude” (Dewey 1916, p. 310), and it was specifically such changes in the participants’ attitudes with which their evolving meanings of gaming resonated. Below, we focus on discussing how gaming has come to be important and meaningful to participants in different ways—with the pragmatic goal of refining that conceptual knowledge into tentative process models.

In the process of healing from past problems, ranging from fear of relapse to confidence in having learnt to regulate & Strong attachment to gaming, as an integrated part of self, is resilience

In our treatment-seekers’ experiences, it is central to observe how the “process” of overcoming the (self-identified) gaming-related problems divided into those where the problems were already felt to be *completely gone*, and those where *fear or uncertainty* still prevailed (Aaron: “It’s currently better [but] my gaming relationship will always be on a razor’s edge, with a risk of downfall”). Although we cannot know how the lives and experiences of our participants will further evolve, it is informative to witness diverging paths on individual levels already in the present 1-year timeframe. After this study, our belief in the cyclicity of gaming and related contexts of meaning for treatment-seekers is even stronger, and our belief in the stability of gaming and related contexts of meaning for the esports players has changed (see our QH earlier). To explain this through genetic phenomenology, we present an exploratory process-based model of pathways where gaming serves as a coping mechanism for adverse adolescent experiences, based on the present qualitative analysis (see Figure 1 and new hypotheses below).¹

¹ After we had carried out the analysis and received Stage 2 peer review feedback, the first longitudinal twin study on gaming frequency was published by Nilsson and colleagues (2023), involving no less than 32,006 twins in Sweden from age 9 to 18. Their results strikingly echo ours, highlighting the effects that the environment has on people’s cyclical gaming habits. The authors conclude that “gaming frequency at age 9 to some extent

Successful coping-gaming

Many of our esports playing participants also expressed various adverse adolescent experiences, explicitly bullying (Table 2). In those narratives, gaming had served as one of the environmental components that *helped* them build identities, join supportive peer groups, and develop emotionally in safe sociocultural contexts (see Figure 1 in Karhulahti et al. 2022a). Although we rely on interpretative analysis of retrospective data, we consider it justified to infer that gaming became a crucial part of resilience for these participants at least partly due to these historically important coping functions. In these cases, it would also be justified to interpret gaming having been experienced to satisfy psychological needs such as social acceptability, autonomy by control, and actualised self-efficacy, among others. With one single exception, all of our 10 original esports playing participants had been gaming actively since early adolescence and described numerous positive memories of those times in detail. They had become attached to gaming early on and kept holding on to it. Because we applied purposive sampling to reach actively gaming players, our data do not describe those who have stopped or reduced playing after successful coping, but previous research evidences this pathway to manifest across countries as well (e.g., Götzenbrucker & Köhl, 2009; Quandt et al. 2009).

Unsuccessful coping-gaming

All our treatment-seeking participants expressed their gaming-related problems started in adolescence. Their gaming was not *experienced* problematically until much later, but their memories of gaming in adolescence—while often positive—were retrospectively associated with troubles such as being bullied or lonely, as well as other psychosocial challenges. Gaming helped them manage such situations and feelings, but unlike those who expressed successful coping and healthy gaming relationships, the treatment-seekers voiced “loops” where the problems keep returning in cycles. In these cases, gaming seems not to have been a sufficient means to efficiently solve the problems—due to reasons we cannot investigate with the present data. Nevertheless, we do see evidence that some treatment-seekers experience their problematic patterns as “ephemeral”, while for others the patterns remain “persistent”. To refine this into a hypothesis: *coping-gaming in adolescence shapes the meanings of play early on, and these meanings remain present until a potential axiological shift where such meanings begin to lose value for the individual*. In **ephemeral** cases, the meanings of gaming are successfully reconstructed and/or replaced; in **persistent** cases, the negotiation continues without resolution.

One possible theoretical approach to explain the differences between successful and unsuccessful coping-gaming development is to perceive the latter serving immediate, *hedonistic* satisfaction of psychological needs and the former associated with *eudaimonic* meaning-making that aligns with or constitutes personally important values (Huta & Ryan 2010). Hypothetically, in successful coping-gaming, the experiences bear intrinsic meaning and value; and the enjoyment of gaming, although subject to change over time, remains part of one’s identity. Contrarily, in both ephemeral and persistent cases of unsuccessful coping-gaming, it is difficult to keep gaming pleasurable; the act of play cues the difficult experiences in the past. In ephemeral cases, a new type of enjoyment and meaning in gaming can be discovered, whereas in persistent cases the internal conflict remains unsolved and difficult to integrate to one’s evolving identity (see also Oishi & Westgate 2022).

Theoretical frameworks of narrative identity development can further explain both successful and unsuccessful coping paths. In general, while the development of identity involves both stability and change, the former is especially important for psychological functioning in connection with positive affective states and motives (see Pasupathi et al. 2007; McLean et al. 2020). In this theoretical context, having had gaming as a stable identity particle since adolescence can make it meaningful through the participants’ established sense of self (Granic et al. 2020), and holding on to that particle should keep nursing one’s purpose in life

predicted gaming frequency at later ages, but with low stability compared to phenotypes such as gambling ... It is likely that gaming is often cyclic in nature, where periods of more intense gaming alternate with less frequent gaming [suggesting] that the developmental pathway of gaming is influenced by both instability and genetic innovation” (pp. 10–11). We address this in a footnote because the study did not reach us until the very last days of revision. An interview study by Sun and colleagues (2023) was likewise published during our Stage 2 revisions; it is relevant to note how bullying experiences and other social conflicts concerned their treatment-seeking players as well.

as well as psychological functioning. If activities and people grow up into such close relationships—as appears to have happened in both of our participant groups—it is essentially painful to break away not because of oft-cited addiction components like “craving” or “withdrawal,” but rather because erasing a part of one’s identity *should be painful* and lead to reduced psychological functioning. For this reason, we postulate that our esports players are unlikely to quit gaming any time soon; and for the same reason, it likely remains not only impossible but also *unprofitable* for many treatment-seekers to stop playing permanently.

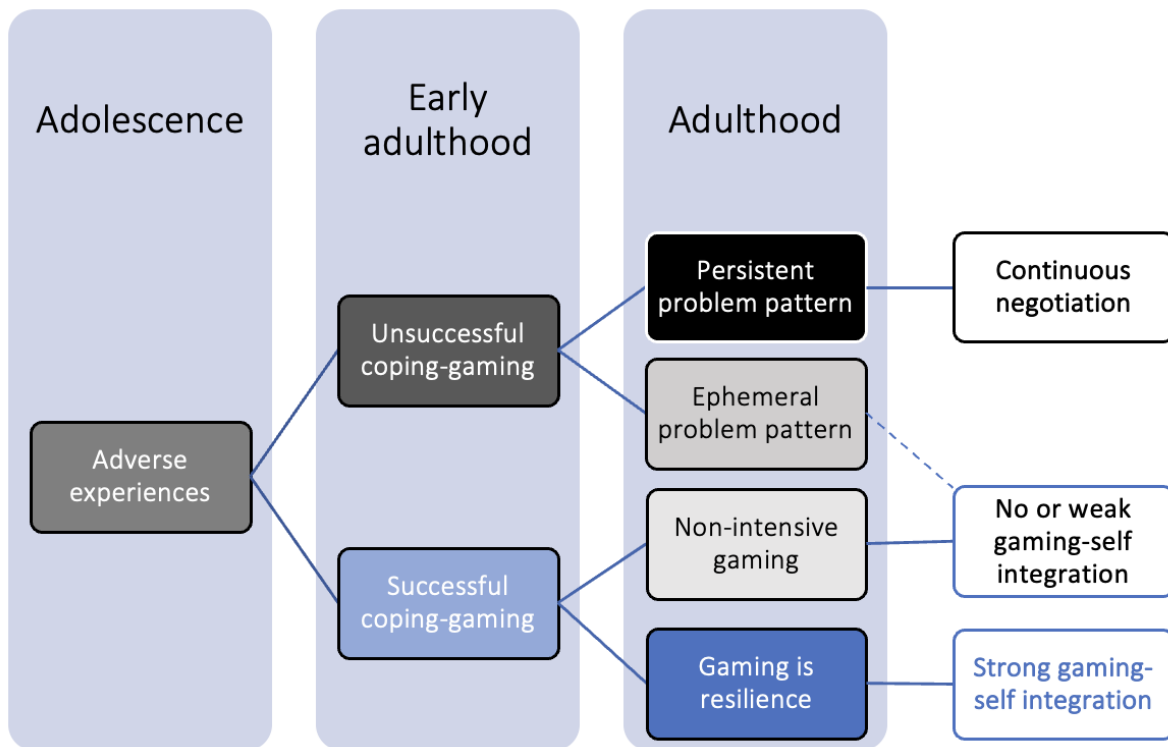


Figure 1 - A process model of coping with adverse adolescent experiences through gaming. Note that the model is not exhaustive of all coping adolescents or paths to gaming.

Various psychological theories of human needs, motivation, and embodied cognition hold that autonomy and the experience of control are some of the most fundamental factors in individual wellbeing (Deci & Ryan, 2012; Di Paolo & Thompson, 2014; Schultheiss & Wirth, 2018). The position can be traced back to the Ricoeurian notion of human identity that is rooted in “various ways in which our biology challenges our experience of being an autonomous self” (Rosfort 2019, p. 338). In the present context, such challenges to autonomy may manifest from emotion regulation, executive functions, and other factors that potentially complicate building a healthy relationship with gaming (e.g., Brevers et al. 2020; Gruber et al. 2023). This fundamental condition and dilemma seems to characterise those treatment-seekers whose problems with gaming manifest persistently, either as a recurring inability to control play time or by being shadowed by a continuous fear of relapse—frequently described by some participants as per Gadamer’s (1975) famed principle: “all playing is a being-played” (p. 106). These participants felt that the “game was playing them” rather than them playing the game. Such experiences specifically echo the previous qualitative findings by Shi and colleagues (2019) who identified a “push-pull” pattern to characterise those whose gaming was perceived problematic: personal, interpersonal, and environmental influences causing unintended and uncontrollable cyclicity in both time as well as type of play. Self-regulation against internal and external pressures, which can differ radically between sociocultural contexts, has already been studied extensively (e.g., Pulkkinen 2017) but should be further investigated in relation to new technologies.

Attempting to replace meanings previously found in gaming, but also trying to rediscover the enjoyment related to it & Gaming identity adapts and evolves

The psychiatric literature on the phenomenology of depression recognises disrupted conative dynamics (orientations toward the future) as one of the key experiential descriptors. Namely, depressive experiences are often described by a disturbance in committing to goals and future-directed temporality, as a “loss of drive, appetite, libido, interest, and attention [leading] to psychomotor inhibition and to a slowing-down of lived time” (Fuchs 2019, p. 437). To complement this notion, Ratcliffe (2015) has applied the concept of *existential feeling* to account for alternative phenomenological states in depression. In general, existential feelings represent the common ways of being in the world with other people; they remain concealed when we are healthy and engaged with activities on a “taken-for-granted” mode. In clinical depression narratives, however, existential feelings surface and become tangible, typically as a felt loss of significance from the world and its people. The changes in existential feeling “are shifts in the *kinds of possibility* that experience incorporates” (Ratcliffe 2015, p. 41). We believe the manifestation of these very shifts in perceived possibilities may help understanding the experiences of gaming-related problems as well.

Studies using psychometric gaming disorder measures systematically find strong correlations between gaming-related health problems and depression across cultures and time (Ropovik et al. 2023; see also Colder Carras et al. 2020). In this study, we see patterns that complicate these correlations. First, in terms of conative dynamics, we witness our treatment-seekers having had strong and active orientations toward the future to different degrees. In fact, for many, the problems specifically stem from their long-term commitments to gaming.² The problems lived through by our treatment-seekers were not in lacking or disturbed conation as such but rather having experienced their conative drive manifest in the “wrong” place, that is, gaming worlds with little or no societally valued cultural capital (e.g., Consalvo 2007; Kirkpatrick 2013). Because gaming was often pursued at the cost of more societally accepted goals, their behaviour may have appeared “disordered” for a long time—but the clash manifested only when the individuals *themselves* felt gaming started limiting their lives. This was typically associated with the participants having come to incorporate new values related to other life domains later in life.

Through this lens, it is possible and even reasonable for individuals to express salient symptoms of depression and simultaneously be committed to short- and even long-term gaming goals. A conceivable hypothesis, with reference to Figure 1, is that people who use gaming for coping with adverse adolescent experiences may *maintain an active conative drive by playing, but if the original source of problems remains untreated (depression, trauma, etc.), prolonged coping-gaming can thin out self-efficacy (e.g., Bandura 1977) in other life domains.*

In the above model, what Ratcliffe (2015) described as shifts in the kinds of possibility in people’s experiences is relevant. In depression, people experience “a change in one’s sense of belonging to the world” (p. 50), and along with this change, the subjectively experienced options available for them in life narrow down or diminish. For many of our treatment-seekers, a similar pattern had occurred: over years or decades of play, the possibilities related to non-gaming goals became increasingly *distant* to them both in terms of availability and value. That is, they could less and less perceive themselves pursuing goals in non-gaming life domains, while the subjective value of those life domains also vanished gradually. This autocatalytic process resonates with social thinning models (McCrary et al., 2022), which suggest that childhood maltreatment can negatively snowball the quality and quantity of supportive social relationships. As a follow-up hypothesis, we suggest that an *unsuccessfully treated adolescence trauma*

² Note from the first author. In my earlier work (Karhulahti 2020), I perceived long-term commitment to gaming as a key phenomenological difference between gambling disorder and intensively gaming players of esports games: “Opposed to the loop and circle and that have become to describe the way in which gamblers see their zoned lives, a more accurate metaphor for describing dedicated [esports] play is a *channel* ... the drive for progression under competence-related anticipation” (p. 100). After the present study, I see more clearly how the social *valuation* of these long-term anticipation channels determines their potential problem status. The data in the present article are sufficient to update that belief with the notion of an axiological crisis, as described below. One could also see that some treatment-seeking participants, despite their commitment, did not identify their play with “long-term goals” despite decade(s) of play. For instance, when Aaron was asked whether gaming was one of his central goals in life: “It never was. It was just a part of my life, my whole life.” It would be a worthwhile effort to further investigate this potential *existential feeling* in question.

combined with coping-gaming overtaking one's conative drive can gradually **narrow down the range of self-efficacy and distance the experienced availability and value of goals in other life domains** (Figure 2). We specifically use the term "experienced" here to highlight that, in principle, the goals in other life domains remained available—the participants had not lost the capacity to pursue them—but the efforts to do so were merely perceived as oversized in that moment. As years went by, their confidence in pursuing non-gaming efforts further thinned down. Following the processual pattern of social thinning, we call the above hypothetical process "life thinning."

As presented here, life thinning is partially related to the established idea of a single activity "dominating" a life in a manner that is not optimal for human wellbeing. So far, the literature has touched on this idea via mixed constructs that have not reached conceptual clarity. For instance, the term "preoccupation" has been used for a long time and is still listed in the DSM-5-TR: "the individual thinks about previous gaming activity or anticipates playing the next game; Internet gaming becomes the dominant activity in daily life" (American Psychiatric Association (2022, p. 913). Griffiths (2005), in turn, labels "salience" as the primary component of addiction and describes it to occur when an "activity becomes the most important activity in the person's life" (p. 193). In these descriptions, attention and incentive salience (e.g. Parr & Friston 2019; West & Brown 2013) are merged with having thoughts about gaming and, more holistically, gaming "overtaking" life (e.g., see Table S1 in Pontes et al. 2014). In contrast to the above, our notion of life thinning refers specifically to the *process* where non-gaming life domains—education, family, work, and other potential areas of long-term interest available—are increasingly experienced as out-of-reach due to lacking self-efficacy in those domains. By dissonance reduction, the values related to such non-gaming domains can likewise become more distant. Both etiologically and phenomenologically, "life thinning" is thus a distinct construct and aims to capture a very specific process that concerns a small group of specific people.

In light of these hypotheses, the esports players' experiences serve as illustrative counter-examples. After successful coping (Figure 1) and gaming having grown into their resilience, they do not experience life thinning. Rather, their conative dynamics remain distributed across life domains. As we concluded after our baseline interviews, the esports players "maintained gaming among their core life values and playing several hours daily was a meaningful part of their lives" (Karhulahti et al. 2022a, p. 17). For them, gaming evolved in service of the life changes they lived through, which we conceptualise as a "resilience-integrating" process.

Whereas this adaptive symbiosis also seemed to keep gaming meaningful and gratifying for these esports-playing amateurs year after year, the treatment-seekers—with few other life domains experienced available and valuable—appeared to have gone through an erosion of significance and enjoyment. Over the years, gaming provided them with diminishing returns, but because those diminished returns were still perceived as the highest *available* valued returns, it *made sense for them to keep playing*. Only when they came to look at their lives from a new axiological viewpoint at older age, other life domains, such as family, education, occupation, and social networks, increased in value to such extent that, for the first time, it *did not make sense to continue playing* as much anymore. This shift could be described as an "axiological crisis" that transforms one's experience of passing time from implicit to explicit, biographical self-context (Fuchs 2013).

Although our models are tentative and derive from a focused sample ($N=9$), we believe longitudinal qualitative analyses such as these can help push forward the relatively abstract gaming disorder premises that have so far been primarily based on general population survey data. For example, a recent impressively large ($N=14,740$) study on motivations in gaming disorder suggested that "depression symptoms [strengthen] escapism and boredom motives and causing [gaming disorder]" (Király et al. 2022, p. 810). Whereas we completely agree that depression symptoms can be relevant to problematic gaming patterns, our view of causality is rather networked and processual: adverse adolescent experiences are managed by coping-gaming (Figure 1) and in unsuccessful coping (affected by an unsupportive sociocultural environment), trauma-driven narrowing down of self-efficacy range gradually distances the experienced availability and value of non-gaming life domains—eventually contributing to an erosion of gaming significance, enjoyment, and *life thinning*, ultimately leading to an axiological crisis with treatment-seeking (i.e., meaning, joy, and value in gaming have worn off, but one does not see other goals sufficiently available either). In the above process, depression symptoms may or may not be present from onset to end; in fact, any chronic stressors or untreated trauma could sustain failed coping.

Needless to say, our processual model is unlikely to be generalisable to all experiences of gaming-related problems. Even in the present data, two out of six treatment-seekers (Bruno and Dan) did not express their problems fully in this processual frame: although both reported adverse adolescent experiences, their problems manifested cyclically, returning in short periods during which an inability to control playing time caused them but temporary self-diagnosed harm. Supposedly, their coping-gaming never reached a persistent problem pattern but rather an ephemeral one (Figure 1), and as such, could be considered typologically distinct from the former. This typological variance is consistent with what Bleckmann & Jukschat (2015)—using biographical clinical interview data—have coined as the *integrated (dys) functionality model* of gaming that

characterizes unfavorable circumstances, not sick people [and] describes a "pathological" biographical context in which the interviewees feel unable to fulfill the expectations imposed on them by others or themselves (n.p., emphasis added).

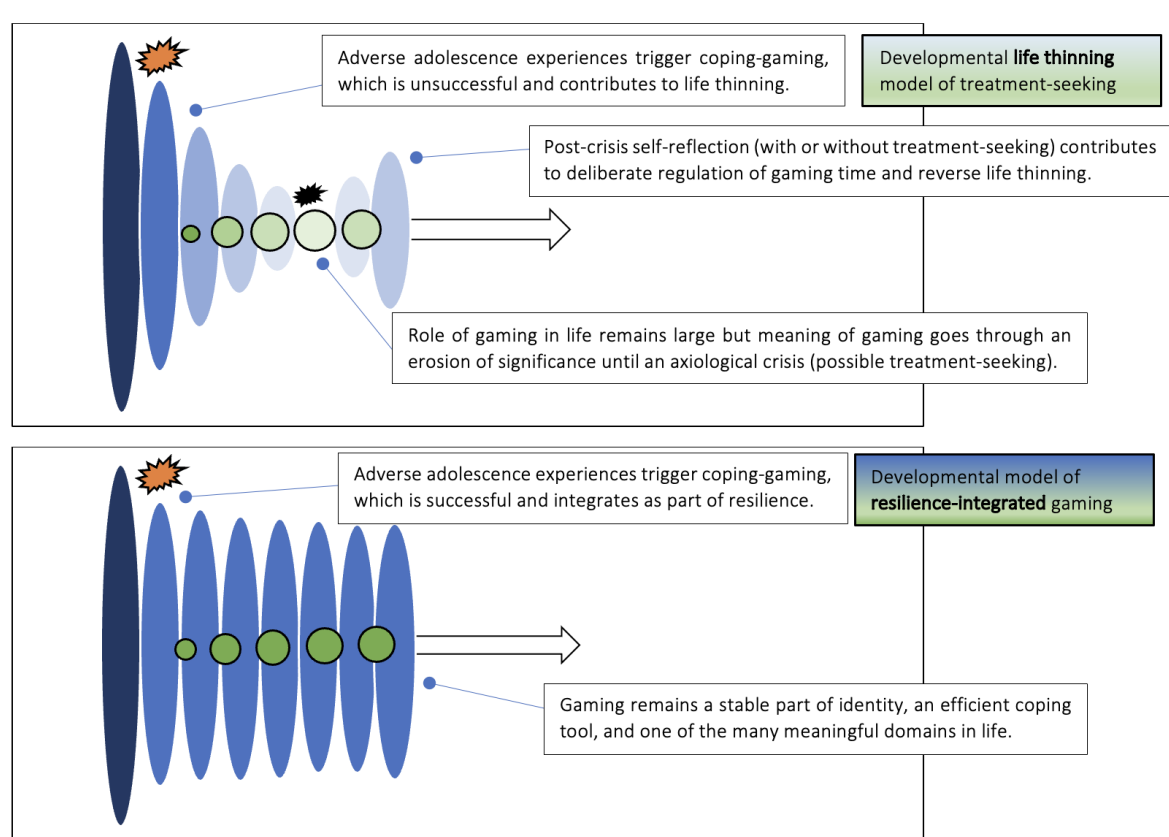


Figure 2 - Developmental life thinning and resilience-integrating models of gaming after adverse adolescent experiences and coping. ■ = Experienced availability and values across *life domains* ■ = Experienced availability and values in *gaming*. Color strength = significance as experienced **meaningfulness** from **value**. Shape range = experienced **availability** through **self-efficacy**.

As we originally discussed in the baseline report (Karhulahti et al. 2022a), and as the present follow-up data further emphasise, the relationships between gaming individuals and their evolving environments—what is experienced as acceptable, respectable, and valuable in their micro and macro sociocultural contexts—should remain a key subject for future research. For instance, depressive symptoms are known to widely differ between Chinese and American treatment-seekers (e.g., Kleinman 2004) and the evidence for various cultural idioms of distress (Nichter 1981; 2010) has accumulated to such a great extent that the most recent DSM-5-TR (American Psychiatric Association 2022) now recognises this to complicate global diagnostic practice. It is possible that a large part of gaming problems, too, are best explained by these culture-specific frames, which require focused methodological attention (see Snodgrass et al. 2022). We hope and believe that future in-depth research across cultures and demographic groups will expand and revise our findings; or prove them wrong, whatever brings us closer to better knowledge.

General discussion

For all our treatment-seekers, the genesis of experiencing gaming-related problems involved a long history of actively playing videogames one or more decades. Over these years, gaming had served various psychosocial functions—especially coping in adolescence and later—until gradually reaching an axiological crisis where the individual experiences the activity to have come into a conflict with desires or priorities of high value. For some, these moments of self-reflection appear to motivate successful habit changes and new regulation strategies that are sufficient to reduce their dissonance with relative ease. For others, dissonance remains a part of their daily experience due to various reasons, such as distress caused by detaching from their game community or being persistently unable to follow time regulation plans.

On one hand, the “clinical relevance” of gaming disorder (see e.g., Przybylski et al. 2017) seems to largely depend on whichever of the above processes we select as our preferred clinical examples (Figure 1). While we highlight, again, that we did not carry out clinical interviews and thus do not make diagnostic claims, the present findings provide evidence for a reality where adults in very different life situations seek treatment for diverse types of gaming problems, some of which are characterisable as clinically relevant experiences to more severe degrees and longer periods than others (as we also found in Karhulahti et al. 2023). Due to a lack of clinical validation studies with the current quantitatively used gaming disorder scales (see Carragher et al. 2022), it remains unknown which of the processes and types of gaming problems presented here—if any—the commonly reported epidemiological estimates signify (for relevant ontological literature, see Haslam 2003; Davidson et al. 2022; Karhulahti et al. 2022b).

On the other hand, it should also be noted that nosologically established addictive episodes, such as those related to various substances, can also be cyclically or temporally experienced and do not require the problems to manifest in a longer continuous manner. A recent book-length review of the literature highlights that only a quarter of addictive drug use cases across substances appear to be continuous, thus concluding that “addiction is not a chronic disorder, but a limited and, after some years, perhaps, a self-correcting disorder” (Heyman, 2009, p. 76). Similar conclusions have been made in clinical case studies, as in the following autobiographic work drawing from the researcher’s own years-long heroin addiction:

in seeking to treat and study addiction, we would do well to ask patients and participants what they experience during and after addiction, and how they perceive their behaviors as contextualized by circumstance ... We should ask them what they intend and want to achieve before we define and measure treatment or research outcomes that may or may not comport with what they want. As scientists, we should remain skeptical but open to what we might hear (Smith, 2022, pp. 3–4).

Gaming is not heroin, but we agree that an improved understanding of what treatment-seekers themselves believe and think will keep helping us to build stronger arguments about how “gaming disorder” should be addressed and understood in the future. As we do our best to remain both sceptical and open to such first-person accounts in this study as well, we avoid drawing further inferences for the field in general and leave the data as well as results to be reconsidered in later meta-analyses and theoretical developments.

Limitations

All studies with clinical treatment-seeker data come with a well-known limitation: admission rate bias. Not all people with clinically significant health problems seek treatment, and it is probable that people with access, comorbidities, and motivation seek treatment more than others. In our study, additionally, the longitudinal and phenomenological nature may have selected certain individuals who are exceptionally open to scientific collaboration and sharing (see Kuula 2011; Bourne & Robson 2015). On the other hand, the self-determined decision to seek treatment also serves as a clear and strong inclusion criterion especially for gaming problems, the diagnostic status of which remains highly debated and polarised. In our view, self-determined treatment-seeking is a gold standard for studying the clinical relevance of gaming problems and outclasses scale cut-offs or references from caregivers. That said, in the long run, it is important to assess clinical data from diverse populations, including non-treatment-seekers, to paint a comprehensive descriptive picture of potentially relevant cases.

Second, we note that our interview did not inquire details about the specific treatments from which the participants had sought help recently or earlier in their lives (for gaming and other problems). It is possible that those treatments, or related medications, had affected their experiences and evolving relationships with gaming. We leave this as a limitation that future studies could tackle by combining phenomenological and clinical interviews, or by asking detailed medical histories separately via survey. On the other hand, in the present study, already two out of nine participants did not want to provide direct mental health data in a survey format. Adding more explicit health history items can further select specific participants who are ready to share sensitive personal data.

Especially for the last two decades, there has been an increasing call for psychological idiographic “N=1 research” that aims to understand the changes, contexts, and trajectories of single participants instead of seeking generalisable effects in large populations (e.g., Molenaar 2004; see also Rose 2001; Syed 2022). From this perspective, one limitation of our study is that the sample was so large that it did not allow as deep investigation of individual cases as might have been epistemologically desirable. We came to reflect on this limitation already during the data generation and analytical processes, which revealed that longitudinal subordinate themes across cases would have to compromise a notable degree of idiographic depth. This limitation in mind, we chose to follow the group-based comparative plan that was registered at Stage 1 instead of the alternative case study approach. In particular, we hope to see more in-depth phenomenological research to clarify the conceptual ambiguities between “conation” or “future-orientation” in gaming and other life domains—a topic that we struggled to fully organise in the present study. The data are open for reuse and will also enable deeper secondary analysis in the future. We encourage other research teams to utilise these data for case study analyses.

Conclusions

Based on interpretative phenomenological analysis of longitudinal data from gaming-related treatment-seekers ($n=5$) and esports-playing participants ($n=4$), the present study finds intensive relationships with gaming—with and without self-related problems—to be experienced through multidimensional cyclicity. More specifically, we find treatment-seeking being followed by diverse types of problem processing that involve a search of new gaming and life meanings; meanwhile, intensive gaming without related problems continues as an integrated part of self and resilience but can also rapidly adapt and evolve at the face of unexpected life events. Taking the findings together, we propose *life thinning* and *resilience integration* processes as working models that may help to better describe and theoretically explain how some individuals end up seeking treatment for their gaming—while for some others, gaming not only supports them but is a part of who they are.

Author Contributions

VMK conceptualised the study, acquired funding, carried out interviews, curated data, participated in analysis, supervised, created visuals, wrote the original draft, and edited it. MS carried out interviews, curated data, coded data, participated in analysis, and accepted the final version. JV participated in funding acquisition, coded data, participated in analysis, and edited the final version. RK participated in funding acquisition and analysis as well as edited the final version.

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Competing Interests

VMK is one of the recommenders of PCI Registered Reports. For historical transparency, more than a decade ago VMK was one of the co-founders and developers of the IGDB website, which is an open online database for various types of game knowledge. VMK never received a salary for this work, but when the website was turned into a company, he became a co-shareholder until a merger four years ago (2019) and has not been involved since. JV is a CSO in Kinrate Analytics, which provides personalised game recommendations. *Non-financial interests*: all authors have personal gaming histories and related hobbies. We worked with various health professionals and organisations on this research.

Data, analysis code, supplementary materials

The data have been submitted to the Finnish Social Science Data Archive for reuse. Coding and other materials are shared as Supplements (folder Programmatic RR 2): <https://osf.io/7v5bj/> (Karhulahti et al., 2023b).

Supplement 1: Instructions and bio summaries.

Supplement 2: Materials from analysis and coding.

Supplement 3: Exploratory investigation of previous conclusions and language.

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