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Organizer

Department of Psychology

Faculty of Humanities and Social Sciences

University of Split

Poljička cesta 35

21000 Split

tel: 021/545-563

email: info.psychology@ffst.hr

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Table of Contents

Adaptation and Validation of an Ultra-Brief Version of the Big Three Perfectionism Scale – Short Form (BTPS-SF)	5
Divna Blažev, Mirta Blažev, Tina Peraica	
Managerial Activity in Conflict Management: Lessons from a Small Island State Using AI.....	17
Katya De Giovanni, Clare Portelli	
Narcissistic Personality Disorder: History, Types, Manifestation and Treatment.....	32
Dora Popova Uzunovski	
The Importance of Classmate Support on Problematic Online Gaming: A Study of Macedonian Adolescents	51
Marijana Markovikj, Eleonora Serafimovska	
Music-Induced Ethnocultural Empathy: Promoting the Power of Ethnocultural Empathy through Jazz and Film Music.....	66
Simen Christensen Grøgaard	
Physical Activity and Not Digital Technology Use Predict Primitive Reflexes in First-Grade Pupils in Croatia	79
Marina Kotrla Topić, Ana-Marija Ćorić, Marija Heffer.....	

Adaptation and Validation of an Ultra-Brief Version of the Big Three Perfectionism Scale – Short Form (BTPS-SF)

Divna Blažev¹, Mirta Blažev¹, Tina Peraica²

¹*Institute of Social Sciences Ivo Pilar, Zagreb, Croatia*

²*University Hospital Dubrava, Department of Psychiatry, Zagreb, Croatia*

Abstract

The present study aimed to adapt and validate a Croatian ultra-brief version of the Big Three Perfectionism Scale – short form (BTPS-SF) for use in time-limited research settings and to reduce participant burden in large-scale surveys. Participants were 1337 young women (ages 18–21; $M = 19.8$) from all Croatian counties, who completed an online questionnaire including the BTPS-SF (subscales: Rigid Perfectionism, Self-Critical Perfectionism, and Narcissistic Perfectionism), along with measures of obsessive–compulsive symptoms (OCI-R) and disordered eating behaviors (EAT-26, DEAS-s, DOS). Exploratory factor analysis confirmed the original three-factor structure but indicated item reduction due to cross-loadings and low factor loadings, resulting in a nine-item ultra-brief version (U-B BTPS) with three items per subscale. Confirmatory factor analysis supported this three-factor solution, showing high factor loadings and very good model fit indices. The U-B BTPS and its subscales demonstrated strong internal consistency, while convergent validity was supported through significant correlations with related constructs (obsessive–compulsive and eating disorder measures) in the expected directions. Overall, the U-B BTPS provides a reliable and psychometrically sound tool for assessing perfectionism among young women in Croatia, offering an efficient measure particularly well suited for large-scale surveys and studies with limited assessment time.

Keywords: perfectionism, BTPS, psychometric validation, short-form scale, young women

Introduction

Perfectionism is a complex, multidimensional personality construct, typically defined by an individual's tendency to set excessively high standards for oneself and others, accompanied by critical self-evaluations and concerns about meeting those standards (Smith et al., 2016). Conceptually, perfectionism is often distinguished as adaptive (*normal/healthy*) or maladaptive (*neurotic/pathological*) forms. Adaptive perfectionism reflects high standards pursued with flexibility and without excessive self-criticism, whereas maladaptive perfectionism is characterized by rigid, unrealistic standards and harsh self-criticism, often

leading to distress in the face of imperfection (Hamachek, 1978; Kawamoto et al., 2023; Slade & Owens, 1998; Stolz & Ashby, 2007).

Maladaptive perfectionism has been extensively linked to a range of mental health difficulties and is considered a significant risk factor for depression (Egan et al., 2011; Hewitt & Flett, 2007; Simon et al., 2025), anxiety (Frost & DiBartolo, 2002; Simon et al., 2025; Smith et al., 2017), obsessive-compulsive disorder (Frost & DiBartolo, 2002; Halmi et al., 2005), and eating disorders (Halmi et al., 2005; Kehayes et al., 2019). These strong associations highlight the importance of precise and efficient assessment tools capable of reliably measuring perfectionism in both clinical and non-clinical populations.

Several internationally established scales have been adapted for use in Croatia. Hewitt's Multidimensional Perfectionism Scale (MPS-H; Hewitt et al., 1991), a 45-item instrument measuring self-oriented, other-oriented, and socially prescribed perfectionism, has demonstrated good reliability but an inconsistent factor structure in a Croatian student sample (Tomic & Andreis, 2023). Frost's Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990), comprising 35 items across six subscales (personal standards, concern over mistakes, parental expectations and criticism, doubting of actions, and organization), has been validated among Croatian adolescents and young adults, with evidence for both five- (Crnić et al., 2006, as cited in Zubčić & Vulić-Prtorić, 2008) and six-factor solutions and high internal reliability (Zubčić & Vulić-Prtorić, 2008). The Positive and Negative Perfectionism Scale (PANPS; Terry-Short et al., 1995), a 40-item instrument differentiating adaptive and maladaptive perfectionism, has been confirmed as a two-factor solution with high reliability in Croatian student samples (Lebedina Manzoni & Lotar, 2011). Finally, the Almost Perfect Scale-Revised (APS-R; Slaney et al., 2002), with 23 items and three subscales (order, standards and discrepancies), has demonstrated acceptable reliability among Croatian adolescents (Gilman et al., 2005), though confirmatory evidence for its factor structure is lacking.

More recently, the Big Three Perfectionism Scale (BTPS; Smith et al., 2016) has emerged as a comprehensive measure of perfectionism, integrating content from existing instruments into a 45-item scale assessing rigid, self-critical, and narcissistic perfectionism. To reduce participant burden, Feher et al. (2020) developed the short form of the BTPS (BTPS-SF), a 16-item measure that retains the original three-factor structure while maintaining robust psychometric properties.

In Croatia, to the best of our knowledge, the BTPS has not been systematically validated, while the BTPS-SF has only recently been examined and is not yet widely used. A study on young Croatian women reported good internal reliability and confirmed the expected three-factor structure in the Croatian cultural context (Blažev, 2023). However, given the increasing demand for brevity and efficiency in psychological assessment, particularly in multidisciplinary and large-scale research, there is a practical need to further adapt the BTPS-SF into an ultra-brief version that minimizes response time while preserving psychometric quality.

The present study therefore aimed to develop and validate an ultra-brief Croatian version of the BTPS-SF and to evaluate its psychometric properties in a sample of young women aged 18–21. This population was selected because young women represent a demographic particularly vulnerable to perfectionism-related psychopathology, especially eating disorders, which disproportionately affect females in this age group (Rivière & Douilliez, *Psychology in transition: Adapting to a rapidly changing world / Conference Proceedings*

2017; Ward et al., 2019). By focusing on this demographic, the study seeks to provide a culturally adapted, efficient, and psychometrically sound tool to support future research and clinical work on perfectionism and its related outcomes among young Croatian women. Specifically, the study had three objectives: (1) develop a shortened version of the BTPS-SF, (2) examine its factorial structure and internal reliability, and (3) evaluate its convergent validity in relation to related constructs, i.e., existing measures of obsessive compulsive and eating disorders.

Method

Participants

The final sample consisted of 1337 young women aged 18 to 21 years ($M = 19.8$; $SD = 1.1$) from all counties in Croatia. The sample was convenience-based and non-probabilistic. Participants represented different parts of the country: 29.9% ($n = 400$) were from the Pannonian region, 26.3% ($n = 353$) from the Adriatic region, 22.7% ($n = 303$) from the Northern region, and 21.1% ($n = 282$) from the city of Zagreb. In terms of educational attainment, the majority had completed a four-year secondary school program (82.7%, $n = 1,106$). A smaller share held a university undergraduate degree (8.5%, $n = 113$), had completed a three-year secondary school (5.7%, $n = 76$), or had finished only elementary education (3.1%, $n = 42$).

Measures

The Big Three Perfectionism Scale – short form (BTPS-SF; Feher et al., 2020) is the validated short version of the original Big Three Perfectionism Scale (BTPS; Smith et al., 2016), which is a 45-item measure of multidimensional perfectionism. The BTPS-SF consists only of 16 items from the original scale, specifically assessing three major dimensions of perfectionism: Rigid Perfectionism (demanding one's own flawless performance), Self-Critical Perfectionism (critical self-evaluation and concern over mistakes), and Narcissistic Perfectionism (expecting perfection from others). Participants rate each item on a 5-point Likert scale ranging from 1 "Not at all true for me" to 5 "Very true for me." The total score is calculated by summing item responses within each factor or across the scale, ranging from 16 to 80 for the total score, 4 to 20 for Rigid, 6 to 30 for Self-Critical, and Narcissistic Perfectionism; higher scores indicate greater perfectionistic tendencies in the respective domain. Cronbach's alpha internal reliability in our study was .885.

The Obsessive-Compulsive Inventory–Revised (OCI-R; Foa et al., 2002) is an 18-item self-report scale evaluating obsessive-compulsive symptoms and consists of six subscales: Washing, Checking, Hoarding, Ordering, Obsessing, and Neutralizing. Each item is rated on a 5-point Likert scale (0 = "Not at all" to 4 = "Extremely") regarding distress or bother over the past month. Subscale scores and a total score are generated by summing item responses, with the total score ranging between 0 and 72, with higher scores reflecting greater symptom severity. A cutoff score of 21 is suggested to distinguish individuals likely affected by obsessive-compulsive disorder. The OCI-R has demonstrated robust reliability and validity for both clinical screening and symptom severity assessment. Cronbach's alpha internal reliability in our study was .908.

The Eating Attitudes Test-26 (EAT-26) is a widely used self-report questionnaire assessing attitudes and behaviors related to disordered eating symptoms in non-clinical populations

(Garner et al., 1982). The scale comprises 26 items forming three factors: Dieting (preoccupation with weight loss and avoidance of fattening foods), Bulimia and Food Preoccupation (intrusive thoughts about food and bulimic symptoms), and Oral Control (self-regulation around eating and perceived societal pressure). Each item is rated on a 6-point Likert scale (from "Always" to "Never") and after the responses are converted into scores from 0 to 3 for each item. Scores are then summed to produce a total score, ranging from 0 to 78, with higher scores indicating greater eating disorder symptoms. Cronbach's alpha internal reliability in our study was .837.

The Disordered Eating Attitude Scale – short form (DEAS-s; Alvarenga et al., 2020) is the validated short version of the original DEAS (Alvarenga et al., 2010), which assesses attitudes toward food and eating (e.g., reluctance to eat, negative associations with food, and perceiving food as disruptive). The scale consists of 17 items rated with two response formats: the first section uses dichotomous "Yes"/"No" responses, while each item in the second section is rated on a 5-point Likert scale (from "Always" to "Rarely/Never"). A total score is obtained by summing all items (possible range: 17–80), with higher scores reflecting more pronounced disordered eating attitudes. Cronbach's alpha internal reliability in our study was .862.

The Düsseldorf Orthorexia Scale (DOS; Chard et al., 2019) is a 10-item self-report measure assessing orthorexia tendencies, reflecting preoccupation with "healthy eating" and associated restrictive choices. Participants had to report on a Likert scale for each item (1 "Does not apply to me" to 4 "Applies to me"), with item scores summed for a total score. So, the total score ranges from 10 to 40, with higher scores reflecting greater orthorexia tendencies. Cronbach's alpha internal reliability in our study was .865.

Procedure

The study was conducted online during April and May 2021. Participants were recruited in collaboration with secondary schools and universities through personal contacts, as well as via online networks such as Facebook groups for high school and university students. In addition, paid Facebook and Instagram ads targeted at women aged 18 to 21 in Croatia were used. The study was approved by the Ethics Committee of the Department of Psychology of the Faculty of Humanities and Social Sciences at the University of Zagreb.

Data Analysis

An exploratory factor analysis (EFA) using principal components extraction with direct oblimin rotation was conducted to examine the underlying factor structure of the BTPS-SF and to identify a smaller set of items with strong factor loadings and minimal cross-loadings in order to develop its ultra-brief version. Factors with eigenvalues greater than 1 were retained. Based on the EFA results, an ultra-brief version of the scale (U-B BTPS) was created by further reducing items to three per subscale, prioritizing those with the highest factor loadings.

Next, confirmatory factor analysis (CFA) was employed to test the fit of the three-factor structure for both the original BTPS-SF and the newly developed U-B BTPS. Model fit was evaluated using multiple fit indices, including the chi-square statistic (χ^2), the comparative fit index (CFI), Tucker-Lewis's index (TLI), root mean square error of approximation (RMSEA) with 90% confidence intervals, and standardized root mean square residual

(SRMR). Following common guidelines (Hu & Bentler, 1999), CFI and TLI values of .90 or higher were considered indicative of acceptable fit, with values of .95 or higher reflecting good fit. RMSEA values below .08 indicated acceptable fit, and values below .05 were interpreted as good. SRMR values below .08 were regarded as acceptable. Standardized factor loadings were examined to assess item contributions to latent factors. Internal reliability was assessed using McDonald's omega coefficient (ω) for total scales and subscales.

Finally, convergent validity of the U-B BTPS was evaluated through Pearson correlations with theoretically related constructs, including obsessive-compulsive symptoms (OCI-R), and disordered eating behaviors measured by the EAT-26, DEAS-s, and the DOS.

Results

Exploratory factor analysis of BTPS-SF

The EFA using principal components extraction and direct oblimin rotation revealed a clear three-factor solution that accounted for 59.9% of the total variance. Three eigenvalues exceeded 1 (5.98, 2.12, and 1.48), supporting the original three-factor structure of the scale. However, some items (btps 1, btps 10, and btps 14 to 16) exhibited cross-loadings across multiple factors, indicating overlap between the perfectionism subscales. These items were subsequently excluded from the confirmatory factor analysis to improve model clarity. To create an ultra-brief version, we further limited each subscale to three items by removing "btps 5" and "btps 6" from the Self-Critical perfectionism subscale due to their relatively lower factor loadings (see Table 2). This reduction resulted in an ultra-brief BTPS consisting of a total of 9 items, with three items per subscale. The factor structure of this brief scale was subsequently evaluated through confirmatory factor analysis, as presented in Table 1.

Confirmatory factor analysis of BTPS-SF and U-B BTPS

Confirmatory factor analysis indicated that the three-factor model of the original BTPS-SF demonstrated acceptable fit according to Hu and Bentler's (1999) criteria across multiple indices. In contrast, the U-B BTPS showed substantially improved model fit, with all goodness-of-fit indices reflecting a very good fit (see Table 1). Additionally, while several factor loadings in the original BTPS-SF fell below the recommended threshold of .50, all factor loadings in the U-B BTPS exceeded .60, demonstrating stronger item-factor relationships (see Table 2). These findings support the robust structural validity of both the original short form and the ultra-brief BTPS scales.

Table 1.

Confirmatory Factor Analysis: Goodness of Fit Indices of BTPS-SF and U-B BTPS (N = 1337)

	χ^2	<i>df</i>	CFI	TLI	RMSEA	90% RMSEA interval	SRMR
BTPS-SF	1016.8	101	.905	.888	0.082	0.078, 0.087	0.057
U-B BTPS	135.9*	24	.978	.967	0.059	0.050, 0.069	0.032

Note. BTPS-SF = Big Three Perfectionism Scale – short form; U-B BTPS = Ultra-brief Big Three Perfectionism Scale; * $p < .01$.

Table 2.

Confirmatory Factor Analysis: Standardized Factor Loadings for Items in BTPS-SF and U-B BTPS (N = 1337)

Factors	Items		BTPS – SF	U-B BTPS
			λ	λ
Rigid Perfectionism	Btps1	I have a strong need to be perfect.	.824	–
	Btps2	It is important to me to be perfect in everything I attempt.	.890	.868
	Btps3	Striving to be as perfect as possible makes me feel worthwhile.	.737	.760
	Btps4	My opinion of myself is tied to being perfect.	.606	.622
Self-Critical Perfectionism	Btps5	The idea of making a mistake frightens me.	.715	–
	Btps6	When I notice that I have made a mistake, I feel ashamed.	.705	–
	Btps7	I have doubts about everything I do.	.719	.712
	Btps8	I judge myself harshly when I don't do something perfectly.	.856	.895
	Btps9	I feel disappointed with myself when I don't do something perfectly.	.859	.855
	Btps10	People are disappointed in me whenever I don't do something perfectly.	.462	–
Narcissistic Perfectionism	Btps11	I expect those close to me to be perfect.	.652	.681
	Btps12	I am highly critical of other people's imperfections.	.738	.829
	Btps13	I feel dissatisfied with other people, even when I know they are trying their best.	.658	.672
	Btps14	It bothers me when people don't notice how perfect I am.	.645	–
	Btps15	I deserve to always have things go my way.	.642	–
	Btps16	I know that I am perfect.	.314	–

Note. BTPS-SF = Big Three Perfectionism Scale – short form; U-B BTPS = Ultra-brief Big Three Perfectionism Scale; λ = standardized factor loading; all factor loadings were significant at $p < .001$.

Descriptive statistics and internal reliability of BTPS-SF and U-B BTPS

Table 3 presents descriptive statistics, and internal reliability estimates for both the full short form (BTPS-SF) and the ultra-brief (U-B BTPS) versions of the Big Three Perfectionism Scale. The BTPS-SF, comprising 16 items, demonstrated high internal reliability overall ($\omega = .887$)

and across its subscales, with omega coefficients ranging from .773 to .876. The U-B BTPS, with a reduced total of 9 items, maintained good overall ($\omega = .832$) and subscale reliabilities between .782 and .863 despite fewer items. Most subscales showed approximately normal distributions except for Narcissistic Perfectionism, which was positively skewed and leptokurtic in both versions (BTPS-SF and U-B BTPS), indicating less pronounced responses on this trait. This pattern is also evident in the means and standard deviations of the subscales, with Narcissistic Perfectionism showing lower average scores and less variability compared to the other dimensions.

Table 3.

Descriptive Statistics and Internal Reliability of the BTPS-SF and U-B BTPS (N = 1337)

	No. items	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>Skew.</i>	<i>Kurt.</i>	ω
BTPS-SF	16	29.0	8.6	16	63	0.64	0.15	.887
Rigid Perfectionism	4	8.8	3.3	4	16	0.22	-0.77	.856
Self-Critical Perfectionism	6	12.4	4.8	6	24	0.41	-0.75	.876
Narcissistic Perfectionism	6	7.7	2.6	6	24	2.25	6.27	.773
U-B BTPS	9	16.5	5.3	9	36	0.61	-0.02	.832
Rigid Perfectionism	3	6.5	2.5	3	12	0.28	-0.67	.804
Self-Critical Perfectionism	3	6.3	2.8	3	12	0.45	-0.92	.863
Narcissistic Perfectionism	3	3.7	1.5	3	12	2.41	6.1	.782

Note. BTPS-SF = Big Three Perfectionism Scale – short form; U-B BTPS = Ultra-brief Big Three Perfectionism Scale; Skew. = skewness; Kurt. = kurtosis; ω = McDonald's omega.

Convergent validity of the U-B BTPS

Pearson's correlations in Table 4 demonstrate strong convergent validity for the U-B BTPS and its subscales. All perfectionism subscales exhibited significant and positive associations with obsessive-compulsive symptoms (OCI-R), disordered eating attitudes (EAT-26, DEAS-s), and orthorexic tendencies (DOS), supporting theoretical expectations. Self-critical and rigid perfectionism showed especially strong correlations to eating and obsessive-compulsive symptoms (for self-critical perfectionism correlations ranged from .25 to .47; for rigid perfectionism from .26 to .34), reflecting their clinical relevance. Narcissistic perfectionism showed more moderate associations, except for, as expected, pronounced positive and significant correlations within other perfectionism domains.

Table 4.

Correlations between U-B BTPS and Measures of Obsessive-Compulsive Symptoms (OCI-R) and Disordered Eating Behaviors (EAT-26, DEAS-s and DOS).

	RP	S-CP	NP	OCI-R	EAT-26	DEAS-s	DOS
U-B BTPS	.83*	.85*	.59*	.46*	.42*	.46*	.31*
RP	–	.50*	.33*	.32*	.32*	.34*	.26*
S-CP	–	–	.29*	.47*	.40*	.45*	.25*
NP	–	–	–	.22*	.19*	.23*	.19*
OCI-R	–	–	–	–	.37*	.41*	.24*
EAT-26	–	–	–	–	–	.72*	.56*
DEAS-s	–	–	–	–	–	–	.55*
DOS	–	–	–	–	–	–	–

Note. U-B BTPS = Ultra-brief Big Three Perfectionism Scale; RP = Rigid Perfectionism; S-CP = Self-Critical Perfectionism; NP = Narcissistic Perfectionism; OCI-R = Obsessive-Compulsive Inventory-Revised; EAT-26 = Eating Attitudes Test-26; DEAS-s = Disordered Eating Attitude Scale – short form; DOS = Düsseldorf Orthorexia Scale; * $p < .01$.

Discussion

The findings of this study support the development of an ultra-brief version of the BTPS-SF and confirm its psychometric properties within the Croatian context. In this study, we provided further evidence for the hypothesized three-factor structure of both perfectionism scales, representing rigid, self-critical, and narcissistic perfectionism, with the U-B BTPS, compared to BTPS-SF, demonstrating superior model-data fit with high factor loadings of all items, reflecting strong relationships to their respective latent constructs. Additionally, internal reliability was notably high across overall and subscale scores, indicating that despite item reduction and its brevity, U-B BTPS is still a highly reliable measure.

Convergent validity of the U-B BTPS was clearly established via significant positive correlations between perfectionism subscales and related psychopathologies, notably obsessive-compulsive symptoms (OCI-R) and disordered eating attitudes (EAT-26, DEAS-s, DOS), supporting theoretical expectations and mirroring previous meta-analytic and empirical research (Egan et al., 2011; Kehayes et al., 2019; Smith et al., 2017). The observed pattern of a more pronounced association for self-critical and rigid perfectionism with clinical symptoms versus the moderate associations for narcissistic perfectionism reflects findings from international samples and underlines the clinical relevance of these perfectionism dimensions (Smith et al., 2016; Feher et al., 2020).

This study contributed to the literature by further operationalizing perfectionism as a multidimensional construct in a cross-cultural context, reinforcing the three-factor model of perfectionism as stated by Smith et al. (2016) and Feher et al. (2020). By targeting a sample of young Croatian women, a demographic at heightened risk for perfectionism-related psychopathologies, particularly eating disorders (Rivière & Douilliez, 2017; Ward et al., 2019), the study offers valuable data on the scale's cultural specificity and adaptability. Furthermore, the significant convergent validity established with established measures of obsessive-compulsive disorder and disordered eating behaviors improves the scale's usefulness for the early identification of individuals at risk and supports its use in both research and prevention/intervention settings (Egan et al., 2011; Smith et al., 2017; Chard et al., 2019).

However, several limitations, both methodological and conceptual, should be acknowledged. First, the sample was convenience-based and non-probabilistic, potentially limiting generalizability outside young Croatian women and risking sampling bias. Second, the exclusive use of self-report measures across all assessed constructs may skew the results due to shared method variance and social desirability bias (Paulhus & Vazire, 2007). This raises the need for future studies employing multi-method or longitudinal designs to examine predictive validity and temporal stability more rigorously. Additionally, while the U-B BTPS demonstrated good reliability and validity, reduction to nine items inevitably narrows content breadth, potentially overlooking nuanced aspects of perfectionism that broader instruments may capture. Further investigation is encouraged to compare predictive clinical utility between the ultra-brief version and longer forms or alternative perfectionism scales. Lastly, the study did not directly examine test-retest reliability, diverging from recommendations for comprehensive psychometric validation. Research extending to more diverse populations (e.g., men, clinical groups, older adults) would also strengthen the scale's external validity.

In conclusion, the development of a nine-item scale with strong psychometric properties addresses a major need for efficient, reliable assessment tools in large-scale surveys and multidisciplinary research, where participant burden and time constraints are important. The U-B BTPS's brevity makes it especially useful for both researchers and clinicians seeking to screen for perfectionism in epidemiological studies or initial clinical intake, supporting broader inclusion of perfectionism assessment in complex battery designs without compromising reliability or validity.

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Managerial Activity in Conflict Management: Lessons from a Small Island State Using AI

Katya De Giovanni¹, Clare Portelli¹

¹*Department of Psychology, Faculty for Social Wellbeing, University of Malta*

Abstract

Conflict is very often perceived as a negative issue to contend with in organisations, especially in the Maltese context. Malta is also a European Union Member State with a great influx of foreign workers as unemployment is only at 3%. For this reason, which came about in the last decade, examining conflict has become a relevant issue also because of the cultural issues and possible misunderstandings that foreign workers might bring about in organisations. Although conflict, at times, can be constructive, more often than not it may be also destructive. Resolving or managing conflict effectively requires implementing strategies that promote cooperation, inclusion and understanding. Using the concepts of Thematic Analysis, ChatGPT Version 4.0 was used to elicit themes from 41 individual, semi-structured interviews carried out with subordinates working in the Maltese industry. With regards to the management's role, two prominent themes were elicited; namely 'Proactivity versus Reactivity in Conflict Resolution' and 'Perceived Bias and Favouritism'. This paper aims to outline the innovative methodology used to elicit these themes and to discuss them within the context of a small island state which is increasingly becoming more diverse and cosmopolitan. It also aims to critically analyse these themes using existing literature and to propose ways in which conflict can be dealt with in a more effective manner.

Keywords: conflict, management, small island state, artificial intelligence

Introduction

Conflict is an inevitable aspect of organisational life, arising from differences in goals, perspectives, values and resource allocation (De Dreu & Gelfand, 2008). While some conflict can foster innovation and critical thinking (Jehn, 1995), unresolved or poorly managed conflict often leads to stress, reduced productivity and high turnover (Rahim, 2002). Malta provides a unique setting for studying conflict: a small island with a tight-knit labour market, where increasing workplace diversity intersects with traditional hierarchies and close interpersonal networks. This study seeks to explore how conflict is experienced and managed in this context, especially as organisations adapt to globalised labour flows.

Literature Review

The Nature and Implications of Workplace Conflict

Organisational conflict remains an enduring focus of management scholarship. Contemporary research underscores that while task conflict—differences in viewpoints or ideas—can foster innovation and performance (De Wit, Greer, & Jehn, 2012), relationship conflict—tension rooted in personal incompatibilities—is more likely to impair collaboration and increase stress (De Dreu, 2011). Studies increasingly recognise that conflicts rarely exist in pure form; rather, task disagreements can easily escalate into personal disputes when not managed effectively (Greer, 2017).

Recent empirical work has shown that employees' perceptions of procedural justice and interactional justice—fairness in how decisions are made and how respectfully people are treated—substantially moderate the impact of conflict on performance and well-being (Colquitt et al., 2020). This aligns with findings from the Maltese context, where participants frequently highlighted the importance of clear communication and respectful treatment to maintain trust during conflict.

In addition, the rise of remote and hybrid work arrangements (Wang et al., 2021) has introduced new complexities in conflict dynamics, including misunderstandings due to lack of informal contact and delayed feedback loops. This is particularly relevant in Malta's iGaming and knowledge industries, where remote teams are commonplace.

Managerial Approaches to Conflict Resolution

Rahim's (2002) influential model of conflict management styles—integrating, obliging, dominating, avoiding, and compromising—remains widely applied. However, more recent research has questioned simplistic typologies, suggesting that managers must dynamically adjust strategies according to situational demands and power asymmetries (Tjosvold, Wong, & Chen, 2014).

Meta-analyses indicate that integrative strategies, emphasising collaborative problem-solving and mutual gains, tend to produce better outcomes than avoidance or domination (De Dreu, 2008). For example, a study of European SMEs found that conflict resolution practices grounded in dialogue and joint decision-making predicted higher job satisfaction and organisational commitment (Meneses et al., 2017).

Yet, managers often default to reactive, avoidance-oriented strategies, especially in high-power-distance cultures where challenging authority is discouraged (Ayoko, Callan, & Hartel, 2008). Malta, with its historically hierarchical workplace structures, may be particularly susceptible to this dynamic.

Moreover, perceptions of managerial bias or favouritism can be especially damaging. Employees interpret biased conflict handling as a threat to their status and inclusion (Lind & van den Bos, 2002), increasing the likelihood of disengagement, presenteeism, or turnover (Naumann & Bennett, 2002).

Conflict in Diverse and Multicultural Workplaces

A key development over the past decade is the increasing emphasis on cultural diversity as both a source of creativity and of conflict potential. Culturally heterogeneous teams bring divergent norms, communication styles, and conflict expectations (Stahl et al., 2010). For example, research has shown that employees from low-context cultures (e.g., Northern

Europe) tend to prefer direct conflict expression, while employees from high-context cultures (e.g., Southern Europe, the Middle East) may view direct confrontation as disrespectful (Koeszegi, 2004).

Recent studies have highlighted the importance of cultural intelligence (CQ) among managers for mitigating cross-cultural misunderstandings (Ang, Rockstuhl, & Tan, 2015). High-CQ managers are more adept at recognising culturally rooted conflict triggers and adjusting their approaches accordingly.

Malta's unique position as a small, cosmopolitan labour market—with strong inflows of foreign workers particularly in iGaming, financial services, and healthcare—makes these insights especially relevant. As the data seem to indicate, cultural misunderstandings often intersect with perceptions of bias and reactivity in conflict management.

Technological Mediation and Conflict

Emerging literature also recognises that digital communication tools shape how conflicts emerge and are resolved. While technology facilitates flexibility, it also reduces the richness of cues necessary for nuanced resolution (Gibson & Gibbs, 2006). For example, remote employees may feel disadvantaged in conflict processes due to asymmetric access to information, delays in managerial responses, and lack of visibility (Wang et al., 2021).

Small Island Contexts

Research on small island economies underscores that relational embeddedness—dense social networks and repeated interactions—amplifies the effects of perceived fairness and trust (Baldacchino, 2007; Paci, 2022). In close-knit communities, managers' reputations are particularly salient, and conflict mismanagement can have cascading effects across teams and even industries.

Moreover, Maltese workplaces often maintain informality and personalisation in HR processes (Debono, 2015). While this can foster solidarity, it can also make transparent, structured conflict resolution more challenging.

Methodology

Methodological Approach

This study adopted Reflexive Thematic Analysis as conceptualised by Braun and Clarke (2023). Reflexive Thematic Analysis is a flexible and theoretically informed method for systematically identifying, analysing, and interpreting patterns of meaning (“themes”) within qualitative data. Unlike codebook or coding reliability approaches, Reflexive Thematic Analysis emphasises researcher reflexivity and interpretative engagement over mechanical coding consistency (Braun & Clarke, 2023).

This approach is particularly suited to exploring complex, subjective experiences such as workplace conflict. It enabled the authors to attend to both the content of participants' accounts and the meaning-making processes through which those accounts were constructed.

Epistemological Position

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The analysis was underpinned by a contextualist epistemology, situated between essentialism/realism and constructionism. From this position, the researchers recognise that experiences of conflict are shaped by both objective features of workplace practices (e.g., policies, managerial actions) and subjective interpretations informed by organisational culture and individual histories. Moreover, language does not merely reflect reality but also constructs and negotiates it, and one's own perspectives as researchers inevitably inform theme development.

The researchers do not claim to uncover a single "truth" about conflict in Maltese workplaces. Rather, the goal was to produce a plausible and insightful account of how participants understood and narrated conflict experiences, while acknowledging the researchers' role in shaping this account (Byrne, 2024).

Data Collection

The researchers conducted 41 individual semi-structured interviews with employees in a range of Maltese industries, including iGaming, healthcare, manufacturing, and professional services. Interviews were designed to elicit rich, detailed accounts of specific conflict incidents, emotional responses, perceptions of management practices, and cultural and organisational factors shaping conflict experiences. The interviews lasted between 30 and 90 minutes, were audio recorded, and transcribed verbatim.

Data Analysis Process

Reflexive Thematic Analysis, as outlined by Braun and Clarke (2006, 2021, 2023), was used as the analytical method for this study. This six-phase, recursive process emphasised the active and interpretive role of the researcher in identifying and analysing patterns of meaning across the dataset. The process began with familiarisation, during which the researchers immersed themselves in the data by reading and re-reading the transcripts and, where applicable, transcribing the interviews. This stage involved making initial observations and taking informal notes to capture early impressions and key nuances, ensuring a deep understanding of the content.

Following this, the researchers generated initial codes by systematically tagging segments of the data that appeared relevant to the research questions. These codes were developed inductively and reflexively, evolving as familiarity with the dataset deepened. Coding was not treated as a neutral or objective act but as a subjective and interpretative process shaped by the researchers' theoretical positioning and engagement with the material. Both semantic (explicit) and latent (underlying) meanings were considered in the development of codes.

In the third phase, the researchers began constructing initial themes by uploading the transcripts and using ChatGPT 4.0 to elicit themes based on the codes, which were developed identifying broader patterns of meaning. This stage was interpretative rather than descriptive; themes were not viewed as summaries of topics but as conceptual entities that captured key aspects of the data. Sub-themes were also developed where necessary to organise more complex thematic content. The initial themes reflected preliminary understandings that were further refined in the subsequent phase.

During the fourth phase, the researchers reviewed and refined the themes to ensure they accurately represented the coded extracts and the dataset as a whole. This involved

assessing the coherence and internal consistency of each theme, checking for sufficient supporting data, and revisiting coded material to confirm the validity of theme boundaries. Where necessary, themes were revised, merged, split, or discarded to strengthen the overall analytic framework.

Once a coherent set of themes was established, the researchers moved on to defining and naming them. This phase required articulating the core essence of each theme and its relevance to the research aims. Theme names were chosen to be concise and evocative, while definitions were refined to clearly express each theme's central organising concept. These definitions served as the foundation for the analytic narrative (Terry et al., 2023).

The analysis involved integrating the thematic findings with illustrative data extracts and producing an interpretative narrative that addressed the research questions. Throughout the entire process, the researchers engaged in ongoing reflexivity, critically considering how their own assumptions, positionality, and interpretive lenses shaped the development and presentation of the analysis (Nowell et al., 2023).

Reflexivity and Quality

Consistent with Reflexive Thematic Analysis principles, the researchers recognise that their own positionalities—including their professional backgrounds in organisational studies and familiarity with Maltese workplace culture—influenced their interpretation. The researchers engaged in reflexive dialogue throughout the process, considering:

- How their expectations about conflict in small island states shaped coding decisions
- Potential biases introduced by using AI tools to assist theme development
- The ways their roles as researchers and practitioners might lead them to privilege certain interpretations

Following Braun and Clarke's (2023) recommendations for demonstrating quality, the researchers prioritised transparency (clearly documenting analytic decisions), rigour (iterative theme development), and sensitivity to context (situating findings within Maltese organisational and cultural settings).

Analysis

This section presents a detailed exploration of the two central themes derived from the Reflexive Thematic Analysis of the interviews. In line with Braun and Clarke (2023), the analysis is both descriptive (summarising what participants said) and interpretative (considering why it was meaningful to them and what social and organisational contexts shaped those meanings). The findings are illustrated extensively with participants' own words to foreground their lived experience.

Theme 1: Proactivity vs. Reactivity in Conflict Resolution

This theme captures how the *timing, consistency, and intentionality* of management responses powerfully shaped how employees experienced conflict. A striking pattern was the emotional contrast between cases where managers acted early and transparently, and those where managers delayed action or imposed solutions unilaterally. While prior literature has highlighted the importance of early intervention (Jehn, 1995; Meneses et al.,

2017), these accounts underscore that in the Maltese context—where workplace relationships are often long-standing and personal—proactivity is particularly crucial to maintaining trust.

Sub-theme 1.1: Early Communication Prevents Escalation. In several cases, proactive communication prevented disagreements from becoming entrenched. One participant described a finance-marketing dispute over budget allocations:

“Management, particularly our CFO, took a proactive approach. She initiated a series of meetings to facilitate open communication between the finance and marketing teams. Additionally, a neutral third party, sort of a mediator, was engaged to assist in finding common ground... She was careful not to make the finance team look like party poopers, which helped.” (*Interview 1*)

This approach aligns with Meneses et al.’s (2017) argument that mediation and open forums promote constructive engagement, rather than defensive entrenchment. Notably, the participant highlighted the value of perceived neutrality—that is, the sense that management was not favouring one side.

By contrast, where communication was reactive or absent, employees described a spiral of frustration and speculation. A striking example came from a participant whose team was transferred between departments without prior notice:

“It was more the issue of not being consulted at all, you know?... You feel neglected and not respected... They basically moved around my team and I into these unfamiliar structures without prior acknowledgement or consideration.” (*Interview 2*)

This account illustrates what Colquitt et al. (2020) term interactional injustice—the sense of being excluded from processes that directly affect one’s work identity.

Sub-theme 1.2: Structured Processes vs. Improvised Responses. Participants also highlighted the importance of *clear, pre-established processes*. For example, one participant described how an early disagreement over workload allocation was resolved when management convened a formal meeting:

“The second disagreement was directly with them, and they had called in a meeting with the employees to make everything clear... We agreed to fulfill our duties solely, and should we wish to carry out the extra duties we could do so with extra pay.” (*Interview 3*)

Here, clarity about expectations and procedures defused resentment.

By contrast, a lack of process often left employees feeling that managers were improvising in ways that prioritised convenience over fairness. One healthcare professional described a sudden room reallocation:

“I was informed about this new service by my management, and they also told me they had sorted everything out prior to letting me know... Their solution was to advise me to work from home. Nothing else in this particular situation was done on their side.” (*Interview 4*)

The phrase “sorted everything out” suggests a managerial mindset of closure without consultation. As Braun and Clarke (2023) note, such *managerial monologues* can deepen conflict by denying employees’ sense of agency.

Sub-theme 1.3: Learning and Adaptation. While reactivity was widespread, a subset of organisations demonstrated the capacity to learn from prior conflicts and adapt. In the case of the remote part-time workers asked to cover public holidays, management initially responded punitively:

“She was very upset because she thought that we were like working behind her back... She started to text us saying she doesn’t see us as part of the team.” (*Interview 6*)

However, after further reflection and dialogue, the tone changed:

“After things calmed down, my boss and HR started updating us with the whole process... They realised they were in the wrong, and she scheduled a video call with all the information... Now, we will be paid double.” (*Interview 6*)

This resolution had longer-term benefits:

“We do have occasional meetings now... even one-on-one, because she wants to check with us... especially the ones who are not in the office every day.” (*Interview 6*)

This evolution—from reactive defensiveness to transparent dialogue—illustrates DeChurch and Marks’ (2001) concept of conflict transformation, where resolution processes reshape relational norms.

Sub-theme 1.4: The Emotional Texture of Proactivity and Reactivity. Emotions threaded through every account. Where managers acted proactively, employees described relief and renewed trust:

“I actually felt supported... It was not easy but knowing we were all heard helped.” (*Interview 1*)

Where management was reactive or absent, employees often reported compounded stress:

“It left me dreading going into work day after day.” (*Interview 2*)

“I kept justifying myself to clients... It really affected me, as I always aim to leave my clients satisfied.” (*Interview 4*)

These narratives resonate with Wang et al.’s (2021) research on how unresolved conflict in hybrid contexts leads to persistent *emotional load*—the sense that unresolved issues continue to shadow day-to-day work.

Theme 2: Perceived Bias and Favouritism

The second core theme illuminates the significance of perceived partiality in conflict handling, a pattern consistently identified as corrosive to psychological safety (Simons & Roberson, 2003). In Malta’s relatively small workplaces, such perceptions were often amplified by the closeness of relationships and the visibility of managers’ decisions.

Sub-theme 2.1: Unequal Treatment and Communication. Participants repeatedly contrasted fair treatment with arbitrary or inconsistent communication. One participant described feeling that management's efforts to appease marketing colleagues made the finance team look obstructive:

"The finance team are always seen as the party poopers... She had to tread carefully to avoid antagonising them." (*Interview 1*)

Another recounted how management's indiscriminate sanctions deepened divisions:

"They tried to resolve the conflict by punishing all staff... This created more conflicts and two factions." (*Interview 5*)

Such experiences underscore Lind and van den Bos's (2002) contention that *procedural fairness*—being treated as a valued contributor—is often more important to employees than the specific outcome of a conflict.

Sub-theme 2.2: Role Ambiguity and Double Standards. Part-time and remote workers often felt their contractual rights and boundaries were overlooked. One employee recounted:

"Every time there's a public holiday, they expect us part-timers to work... even though my contract said I shouldn't be working them... No one explained why." (*Interview 6*)

When the participant and colleagues requested clarification, their manager initially accused them of disloyalty:

"She said that if we're not being honest, then she doesn't see us as part of the team... even though we had asked her many times for a meeting." (*Interview 6*)

This account highlights what Ayoko et al. (2008) describe as *power asymmetry*: employees feeling that questioning expectations risks punishment, especially in cultures with strong hierarchies.

Sub-theme 2.3: Emotional Impact and Disengagement. Participants vividly described how perceptions of bias undermined motivation:

"It was very frustrating... You feel neglected and not respected... It made me and the rest of my team feel like we meant nothing to the company." (*Interview 2*)

"Disappointment turned to frustration... resulting in less motivation to work." (*Interview 3*)

Even where employees remained, such disengagement likely had consequences for performance and psychological well-being, echoing Naumann and Bennett's (2002) findings that unfair conflict management damages group cohesion.

Sub-theme 2.4: Constructive Reframing and Growth. Encouragingly, some participants identified positive learning and growth after conflicts were addressed:

"One key lesson was the importance of empathy and understanding... Conflict, when managed properly, can lead to positive change." (*Interview 1*)

Others described how relationships improved through conflict resolution:

“We now have occasional meetings... She understands the importance of communicating... especially with us who work remotely.” (*Interview 6*)

This echoes Stahl et al.’s (2010) assertion that culturally diverse teams can develop *stronger relational norms* if conflicts are surfaced and resolved transparently.

Sub-theme 2.5: The Weight of Silence. Importantly, the data also revealed that unaddressed perceptions of favouritism lingered, sometimes long after a conflict appeared resolved:

“Even though they seemed understanding, nothing was done... Things are still the same.” (*Interview 4*)

This inertia reflects what Braun and Clarke (2023) term *the sediment of experience*: the way unresolved injustice accumulates and subtly shapes future interactions.

Discussion and Implications

This study set out to understand how employees in Maltese organisations experience conflict and how management practices shape those experiences. Using reflexive thematic analysis (Braun & Clarke, 2023), the researchers identified two central themes—Proactivity versus Reactivity in Conflict Resolution and Perceived Bias and Favouritism—each with nuanced sub-themes illustrating how conflict dynamics unfolded. Below, the researchers discuss these findings in light of recent scholarship and draw out their implications for organisational practice and policy.

The Importance of Proactivity and Structured Conflict Resolution

A core finding was that proactive engagement and early communication consistently distinguished constructive conflict management from more harmful experiences. In cases where managers initiated open dialogue, involved mediators, and made explicit efforts to balance perspectives, employees reported feeling respected and supported, even when the conflict itself was stressful.

This finding supports Meneses et al. (2017) and De Wit et al. (2012), who argue that early intervention not only prevents escalation but also signals procedural justice. For example, participants who were consulted early in budget disputes or workload negotiations described greater trust in management, more willingness to compromise, and higher job satisfaction:

“Management... initiated a series of meetings to facilitate open communication... That made all the difference.” (*Interview 1*)

Conversely, reactivity—particularly when managers “sorted everything out” without consultation—undermined employees’ sense of control and belonging. Such reactivity is emblematic of what Braun and Clarke (2023) call “managerial monologues,” where decisions are presented as closed, effectively silencing those affected.

This study’s findings thus reinforce that structured, proactive conflict management is not merely procedural but relational, serving to protect the dignity and inclusion of employees.

The Erosion of Trust Through Perceived Bias and Favouritism

The second major theme—Perceived Bias and Favouritism—illustrates how partiality, inconsistency, or opacity in conflict handling created lasting damage.

When employees perceived that management prioritised certain departments (“the marketing team always got their way”) or failed to enforce consistent standards (“we were punished for others’ mistakes”), the result was often disengagement and emotional exhaustion:

“It made me feel like we meant nothing to the company.” (*Interview 2*)

These experiences echo Simons and Roberson’s (2003) findings that perceptions of unfairness damage not only performance but also employees’ willingness to communicate openly in future conflicts.

In the Maltese context, this dynamic was magnified by relational embeddedness—the closeness of networks in a small island setting (Baldacchino, 2007). Here, employees often knew colleagues and managers personally, making perceived favouritism particularly injurious to professional identities.

Remote Work as a Source of Hidden Inequities

A salient insight concerns how remote and hybrid work arrangements intensified the risk of reactivity and bias. Part-time and remote employees reported feeling excluded from communication loops, subjected to ad hoc expectations (“always expected to cover public holidays”), and scrutinised for raising legitimate concerns:

“She said we’re not part of the team... even though we asked many times for a meeting.” (*Interview 6*)

This aligns with Wang et al. (2021), who argue that hybrid work requires deliberate, visible practices of inclusion to prevent hidden inequities. The data demonstrate that without explicit protocols, remote workers may experience higher conflict stress and less clarity about entitlements.

Learning, Adaptation, and Conflict Transformation

Despite these challenges, several narratives showed that conflict can be a catalyst for positive change when handled reflectively.

Instances where managers acknowledged missteps, apologised, and implemented clearer procedures led to restored trust and more inclusive relationships:

“After they listened to us... she realised she was attacking us for no reason... Now we have regular meetings.” (*Interview 6*)

This resonates with Stahl et al. (2010) and Braun and Clarke (2023), who emphasise that transparent resolution processes can transform conflict into an opportunity for learning and cultural renewal.

Contribution to Theory and Practice

This study contributes to understanding organisational conflict in three ways. Firstly, it shows how proactive conflict management is relational rather than merely procedural—shaping belonging and trust. Secondly, it highlights the significance of perceived bias, especially in small communities with dense networks, and finally, it demonstrates that remote work exacerbates pre-existing vulnerabilities, requiring adapted policies. By situating these insights in the Maltese context, this work underscores that conflict management practices must be culturally and relationally attuned—not simply imported from generic HR templates.

Issues in the Use of ChatGPT 4.0: Lessons Learnt

ChatGPT was used to analyse interview transcripts to find patterns in the data and create themes and sub-themes using pre-established codes. Additionally, it was used to find relevant quotations in the transcripts. Moreover, it allowed for detailed analysis of the data which it did on request with prompts such as “provide more detail on [sub-theme name].”

While ChatGPT managed to come up with themes and sub-themes, it proved important to be familiar with the data as ChatGPT had a tendency to over-generalise by creating patterns based on a single interview. In fact, all the themes and sub-themes that ChatGPT produced were checked with the data. A solution to this limitation was to create a grid with summarised data from the interviews in order to verify that the sub-themes were not created using data from one or few interviews. Therefore, for each sub-theme, the grid was searched to check that it applied to multiple interviews. The grid included a row for each interview, and a column for each question. The codes from the interviews were copied onto this grid depending on the question that they answered. Moreover, ChatGPT 4.0 was not always successful in recognising all the data that fits a sub-theme, as it did not make connections between some data. Therefore, while ChatGPT was useful in finding overarching patterns in the data, it should not be the only tool used; familiarisation with the data is important and the creation of the grid served as a checklist to ensure that ChatGPT is including all relevant data.

Another issue was encountered when requesting interview quotations. On the one hand, the ability of ChatGPT to analyse the entire document to find relevant quotes about a particular sub-theme was important. However, this was done with caution. Some quotes were in fact irrelevant, or on the other hand, the chosen relevant quotes were not found in the original transcribed data. It was necessary to check the context of each quote, and the summary grid was used to check whether other interviews could be checked for a relevant quote. Moreover, some quotes were paraphrased by ChatGPT, by changing the grammar. The most troubling issue was that some quotes were actually made up by ChatGPT 4.0, and thus it is very important to check with the original transcript that the quotes did actually exist, and if no alternatives were found, to check the summary grid to find which interviews could have relevant quotes. It is worth pointing out that there was a tendency for the first requested quotes to be accurate, but after a few requests, quotes were being paraphrased, and eventually even made up. Additionally, continuously uploading the document helped to restart the process and find more accurate quotations.

Finally, it was unclear whether ChatGPT 4.0 could understand all the data. While the process of uploading the data and finding patterns took only seconds, a lot of preparation was made

beforehand. The interviews had to be written in clear English in order to ensure that ChatGPT 4.0 was able to analyse all the data. The summary grid was also uploaded to ensure that ChatGPT 4.0 'understood' what each interview was saying. When comparing the analysis of the interviews and the analysis of the summary grid, it was evident that ChatGPT 4.0 could understand most of what the transcripts portrayed as the main themes and sub-themes were similar. However, for the reasons previously mentioned, the summary grid has numerous benefits and it was worth investing the time to create it, rather than relying solely on ChatGPT 4.0. Therefore, while ChatGPT 4.0 has the benefit of finding patterns quickly, eliciting the necessary level of detailed analysis, and finding quotes, one should be mindful that it has numerous flaws. Therefore, it is important to invest time in making the transcripts clear, familiarising oneself with the data, and creating a summary grid. Caution should be taken when analysing the data and not to rely solely on artificial intelligence. Finally, while these limitations were found, it could be due to user error, and other versions of ChatGPT, or other artificial intelligence, could have provided additional benefits, or lessened some of the limitations. Despite its limitations, the benefits of ChatGPT cannot be ignored, and thus one needs to compare the benefits and limitations when considering its use in Reflexive Thematic Analysis.

Policy Recommendations

Based on these findings, the researchers propose the following policy and practice recommendations for Maltese organisations seeking to improve conflict management:

The establishment of formal conflict resolution frameworks would create clear protocols outlining how conflicts will be reported, acknowledged, investigated, and resolved. This would require documentation of key decisions and rationales to improve transparency. Moreover, there should be the provision of accessible information to employees (in multiple languages if necessary). The training of managers in inclusive and culturally-sensitive conflict practices is a must. Training should go beyond ensuring active listening skills, empathy, and perspective-taking, as well as cultural intelligence (Ang et al., 2015). Moreover, managers should be encouraged to reflect on how implicit biases influence their conflict responses. The communication channels for remote and part-time staff need to be strengthened. There should be explicit guidelines for workload expectations, availability, and entitlements as well as the implementation of regular check-ins with remote workers to surface emerging conflicts.

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Narcissistic Personality Disorder: History, Types, Manifestation and Treatment

Dora Popova Uzunovski¹

¹*Department of Psychology, Faculty of Philosophy, St. Kliment Ohridski, Bulgaria*

Abstract

Narcissistic Personality Disorder (NPD) is a complex psychiatric condition marked by grandiosity, a need for admiration, and a lack of empathy, significantly impairing interpersonal relationships and social functioning. The aim of this paper is to provide an integrative and clinically informed synthesis of disparate theoretical traditions, offering a coherent framework that links historical psychoanalytic concepts with contemporary diagnostic models, clinical typologies, treatment approaches, and emerging neurobiological findings. NPD is examined through a multidisciplinary lens, addressing key psychological constructs, developmental factors, clinical manifestations, and therapeutic challenges. The disorder is often associated with early relational experiences, such as emotional abuse or overindulgence, which contribute to the development of defensive strategies aimed at protecting fragile self-esteem. Clinically, NPD manifests in both overt and covert forms, characterized by a grandiose self-concept that conceals underlying feelings of insecurity and inferiority. Although NPD is frequently regarded as resistant to treatment, contemporary clinical research suggests that meaningful change is possible when interventions target vulnerabilities in self-regulation, affective functioning, and interpersonal dynamics. The distinction between pathological narcissism and healthy self-esteem is emphasized, underscoring that NPD reflects chronic instability of self-worth and reliance on external validation rather than simple self-inflation. Overall, current evidence highlights the importance of multidimensional and integrative frameworks in both the conceptualization and treatment of NPD.

Keywords: narcissism, self-esteem, egotism, treatment, disorder

Introduction

Concept and Historical Development of Narcissism

The concept of narcissism has undergone significant transformation since its introduction at the turn of the twentieth century. Initially conceived within psychoanalysis, it has gradually developed into a multidimensional construct spanning psychoanalytic, psychodynamic, empirical, and diagnostic perspectives.

Early Psychoanalytic Foundations

The decisive turning point came with Sigmund Freud's essay *On Narcissism* (1914), where narcissism was conceptualized as both a developmental stage and a structural element in psychoses and perversions. Freud also described it as a principle of object choice, where the self seeks others resembling what it is, was, or aspires to be (Lunbeck, 2014). These ideas followed earlier psychiatric discussions of autoerotism and sexual self-focus, most notably in the works of Havelock Ellis (1898) and Paul Näcke (1899), which later informed psychoanalytic conceptualizations of narcissism (Sadger, 1908; Freud, 1914).

Post-Freudian Elaborations

Subsequent analysts deepened the clinical meaning of narcissism. Karl Abraham (1919) described characteristic transference resistances, where patients disparaged the analyst. Joan Riviere (1936) introduced the idea of a "negative therapeutic reaction," noting patients' resistance to improvement due to dependency fears. Later, Melanie Klein (1957) and Herbert Rosenfeld (1964, 1971) highlighted envy and aggression as central organizing forces in narcissistic personalities, shaping their destructive object relations.

Mid-20th Century Theoretical Schools

By the 1960s and 1970s, two influential schools emerged. Within ego psychology and object relations theory, Otto Kernberg (1967, 1970, 1974, 1975) conceptualized narcissism as a pathological condition resulting from failures in integrating self- and object-representations. He emphasized splitting defenses, fragile self-esteem, and grandiose self-images rooted in unempathic early caregiving. Kernberg later proposed a dimensional model of narcissism, ranging from normal adult narcissism to pathological forms culminating in narcissistic personality disorder (NPD) (Kernberg, 1984).

Groopman and Cooper (1998) summarized several developmental and environmental factors contributing to narcissistic pathology. These include an oversensitive temperament, inconsistent or unreliable caregiving, excessive admiration without realistic feedback, overindulgence or overvaluation by parents, excessive criticism, and severe emotional abuse in childhood. Such conditions can intensify normal developmental narcissistic traits into pathological forms that persist into adulthood. Some accounts also describe fixation to early childhood stages (ages 3–7) as a Freudian basis for narcissistic arrest, while other studies, such as Gabbard and Twemlow (1994), point to traumatic histories (e.g., incest) as potential risk factors. Importantly, aging and its physical and social limitations have also been noted to exacerbate narcissistic vulnerabilities over time.

In contrast, Heinz Kohut (1971, 1977) advanced self-psychology, redefining narcissism as a libidinal investment in the self, which could be healthy if supported by empathic parenting. For Kohut, deficits in mirroring and idealization during development produced fragile selves compensating through grandiosity or vulnerability. His clinical model emphasized empathy and restoration of selfobject functions as central to therapy.

Types of Narcissists

In addition to broad theoretical models, some authors have proposed more fine-grained typologies of narcissistic personalities, highlighting the heterogeneous ways in which narcissism can manifest.

As described by Alexander Lowen (1975, 1983), narcissistic pathology may manifest through different character expressions rather than discrete diagnostic subtypes. Within his bioenergetic framework, Lowen most prominently described the phallic–narcissistic character, characterized by exhibitionism, competitiveness, sexualization of power, and a need for dominance, alongside variations expressed through compulsive achievement or idealized moral, aesthetic, or spiritual self-images. These manifestations are understood not as distinct types, but as compensatory strategies aimed at sustaining a grandiose self-image and defending against underlying feelings of emptiness and shame.

While Lowen’s contribution remains valuable for its emphasis on bodily experience, affect, and vitality, his model has been criticized for limited empirical grounding and for relying on characterological descriptions that are difficult to operationalize within contemporary diagnostic and research frameworks (Schore, 2003; Fonagy et al., 2002). The strong somatic focus, although clinically evocative, offers limited guidance for differential diagnosis and treatment planning within standardized psychiatric systems.

Building on earlier typological efforts, Theodore Millon (1996, 1998) proposed a more differentiated classification of narcissistic subtypes based on the interaction of narcissistic traits with other personality dimensions. Although clinically intuitive, Millon’s typology has been critiqued for conceptual overlap between subtypes, reification of personality categories, and insufficient empirical validation of distinct subtype boundaries (Haslam, 2009; Miller et al., 2017). Subsequent research increasingly supports dimensional models—particularly the distinction between grandiose and vulnerable narcissism—which demonstrate greater empirical validity and clinical utility (Pincus & Lukowitsky, 2010; Ronningstam, 2016).

Taken together, Lowen’s and Millon’s models highlight the diversity of narcissistic expression but also reflect an era of personality theory centered on descriptive classification. Contemporary approaches increasingly favor dimensional, relational, and neurobiologically informed frameworks that conceptualize narcissism as a dynamic configuration of self-regulatory and interpersonal processes rather than fixed character types.

Narcissism as a Clinical and Subclinical Construct

Parallel to psychoanalysis, empirical psychology explored narcissism as both a trait and a disorder. Raskin and Hall (1979) developed the Narcissistic Personality Inventory (NPI) to measure trait narcissism, defined by egotism, dominance, and self-enhancement. Empirical findings show that narcissists initially appear charming and confident, but over time interpersonal antagonism and entitlement become salient (Back, Schmukle, & Egloff, 2010).

From Psychoanalytic Description to Diagnostic Category

Although discussions date back to Freud, narcissism entered psychiatric nosology only in 1980, when DSM-III (APA, 1980) formally introduced NPD as a distinct category. This reflected a shift from descriptive psychoanalytic accounts toward operationalized, symptom-based definitions (Akhtar, 2001; Friedman, 1989). Later editions of DSM retained NPD with nine diagnostic criteria, centering on grandiosity, need for admiration, and lack of empathy.

Contemporary Dimensional Models

In DSM-5 (APA, 2013), NPD continues as a categorical diagnosis, but the Alternative DSM-5 Model for Personality Disorders proposed trait-based dimensions. By contrast, ICD-11 (WHO, 2019) no longer lists NPD as a separate category. Instead, narcissistic features are described dimensionally across domains such as Dissociality, Anankastia, and Disinhibition. This reflects a broader transition in psychiatry from categorical diagnoses to dimensional models of personality pathology.

Subtypes of Narcissism

Building on these categorical and dimensional frameworks, some authors have emphasized the importance of subtypes of narcissism, particularly in relation to defenses against shame. Gabbard (1989) proposed two main subtypes of narcissistic personality disorder:

- The “oblivious” subtype, characterized by grandiosity, arrogance, and emotional toughness. These individuals project a larger-than-life self aimed at eliciting admiration, envy, and appreciation, while masking a fragile, shame-ridden internal self.
- The “hypervigilant” subtype, marked by hypersensitivity, vulnerability to rejection, and preoccupation with the threat of devaluation. These individuals are acutely sensitive to criticism and often perceive others as unjustly abusive or demeaning.

Contemporary research has empirically validated and expanded this distinction. Cain, Pincus, and Ansell (2008) and Pincus and Lukowitsky (2010) demonstrated that Gabbard’s “oblivious” subtype corresponds to what is now described as grandiose narcissism, while the “hypervigilant” subtype parallels vulnerable narcissism. Grandiose narcissism is associated with overt superiority, dominance, and entitlement, whereas vulnerable narcissism reflects hypersensitivity, insecurity, and shame-driven withdrawal.

Modern dimensional models further emphasize that these forms are not fixed or mutually exclusive. Instead, individuals may oscillate between grandiose and vulnerable states depending on situational context and stressors (Miller et al., 2011). This perspective highlights the dynamic nature of narcissism and the importance of understanding both poles for accurate diagnosis and treatment planning.

In conclusion, the historical and theoretical development of narcissism illustrates a shift from early psychoanalytic formulations, through mid-century object-relations and self-psychology debates, to Lowen’s somatic perspective, Millon’s typologies, and contemporary dimensional frameworks. Contributions such as those of Kernberg (1984) and Gropman & Cooper (1998) highlight both structural models and developmental risk factors, while empirical psychology has established narcissism as both a trait and a disorder. Modern perspectives, further refined by DSM-5 and ICD-11, recognize narcissism as a heterogeneous construct encompassing grandiose and vulnerable subtypes, oscillating between defense against shame and fragile self-esteem.

The following section on Manifestation moves from theoretical formulations to clinical reality, examining how these dynamics become visible in self-image, relationships, values, sexuality, and cognition, and how the contradictions of narcissistic personality disorder unfold in everyday functioning.

Manifestation of Narcissistic Personality Disorder

Narcissistic personality disorder (NPD) is characterized by a pervasive pattern of grandiosity, need for admiration, and lack of empathy, as outlined in the DSM-5 (APA, 2013). Individuals often present themselves as ambitious and self-sufficient, yet this external image conceals a fragile self-esteem that is highly sensitive to criticism and prone to shame.

Akhtar (2001) emphasizes that narcissistic pathology manifests across several domains of functioning—self-image, interpersonal relations, social adaptation, values, sexuality, and cognition—each marked by overt confidence and covert insecurity. Friedman (1989) similarly describes grandiosity as a defensive façade, noting that behind apparent self-sufficiency lies a deep sense of emptiness and alienation. Kernberg (1984) extends this perspective by highlighting the central role of envy and aggression, which contribute to unstable relationships and fragile moral structures. In contrast, Kohut (1971, 1977) interprets these vulnerabilities as the result of disruptions in early self-object relations, leading to a chronic dependence on external validation.

In everyday life, these dynamics produce visible contradictions. Narcissistic individuals may excel professionally and socially, but their drive for success is often fueled by the pursuit of status rather than genuine fulfillment. Their moral and ideological commitments may appear enthusiastic, yet remain opportunistic and easily adjusted for approval (Millon, 1996). In intimate relationships, they may seem charming and seductive, though their capacity for deep emotional intimacy is limited, reducing bonds to sources of validation rather than authentic connection. Cognitively, they can be articulate and decisive, but their reasoning frequently lacks depth and serves primarily to reinforce their self-esteem rather than to achieve genuine understanding (Akhtar, 2001).

Contemporary research reinforces and refines these observations. Cain, Pincus, and Ansell (2008) and Pincus and Lukowitsky (2010) show that NPD manifests in two broad styles: grandiose narcissism, expressed through arrogance, dominance, and entitlement, and vulnerable narcissism, expressed through hypersensitivity, insecurity, and shame-driven withdrawal. Importantly, individuals often oscillate between these modes depending on interpersonal context and stress. Miller et al. (2011, 2017) further emphasize that these patterns are not mutually exclusive: a person may present as socially dominant in professional settings yet display vulnerable, avoidant traits in intimate relationships.

Ronningstam (2016) highlights that narcissistic functioning also has functional aspects: patients may be charismatic, productive, and socially effective. However, these qualities coexist with dysfunctional elements—exploitative behavior, inability to tolerate criticism, and chronic dissatisfaction—creating a duality that complicates both diagnosis and treatment. Similarly, Campbell and Foster (2007) note that narcissists often create strong positive first impressions, marked by charm and confidence, but over time their exploitative tendencies and lack of empathy become increasingly evident in long-term relationships.

It is important to distinguish narcissism from healthy self-esteem. While genuine self-esteem reflects an internalized and stable sense of self-worth, narcissism relies heavily on external validation and admiration. Individuals with healthy self-esteem can acknowledge limitations and accept criticism without a collapse of self-image, whereas narcissistic individuals experience even minor criticism as a profound threat, often responding with defensiveness, rage, or withdrawal (Miller & Campbell, 2008).

In sum, NPD represents a complex interplay between defensive grandiosity and underlying fragility. While outwardly marked by ambition, confidence, and apparent self-sufficiency, its core reflects a vulnerable self struggling with emptiness, envy, and dependency on external affirmation. Modern research underscores that these manifestations are fluid and context-dependent, shifting between grandiose and vulnerable states that together define the paradoxical nature of narcissistic personality disorder.

These contradictions between external grandiosity and internal fragility have prompted psychiatry and psychology to formalize criteria that can capture its core features with greater precision. As the concept moved from psychoanalytic descriptions to operationalized psychiatric frameworks, diagnostic systems such as the DSM-5 (APA, 2013) and the ICD-11 (WHO, 2019) have provided structured definitions of narcissistic personality disorder. The following section examines how NPD is defined and classified within these systems, highlighting both overlaps and divergences between the categorical and dimensional approaches to diagnosis.

Diagnosis

Narcissistic personality disorder has been conceptualized differently in current diagnostic systems. In the DSM-5 (APA, 2013), NPD remains a distinct categorical diagnosis, defined by a pervasive pattern of grandiosity, need for admiration, and lack of empathy, with at least five of nine specific criteria required for diagnosis. In contrast, the ICD-11 (WHO, 2019) does not include NPD as a separate category. Instead, it employs a dimensional model of personality disorders, where narcissistic features are described through the domains of Dissociality, Anankastia, and Disinhibition, and the diagnosis focuses on the overall severity of personality disturbance (mild, moderate, severe). This shift reflects a broader trend in psychiatric nosology from categorical to dimensional approaches.

Table 1.

Comparative Overview: DSM-5 vs ICD-11 on Narcissistic Personality Disorder

DSM-5 (2013): Criteria (≥ 5 of 9)	Diagnostic	ICD-11 (2019): Trait Domains
1. Grandiose sense of self-importance (exaggerates achievements, recognition)		Primarily Dissociality (WHO, 2019)
2. Preoccupation with fantasies of unlimited success, power, brilliance, beauty, or ideal love		Anankastia component (Bach & First, 2018)
3. Belief of being “special” and unique, associating only with high-status individuals		Possible link with Disinhibition (Tyrer et al., 2019)
4. Rarely acknowledges mistakes or imperfections		

5. Requires excessive admiration

6. Sense of entitlement, expects favorable treatment

7. Exploits others to achieve their own goals

8. Lacks empathy, unwilling to recognize others' feelings/needs

9. Envious of others or believes others envy them; arrogant or haughty behaviors

Beyond its categorical and dimensional definitions, narcissistic personality disorder is also classified within Cluster B personality disorders, alongside antisocial, borderline, and histrionic personality disorders (APA, 2013). This grouping reflects their shared dramatic, emotional, and erratic interpersonal styles, yet each disorder retains distinct core features. In the following section, attention will be given to Cluster B as a whole, with a focus on the overlaps and distinctions between narcissistic personality disorder and the other disorders within this group.

NPD within Cluster B Disorders

In both DSM and ICD frameworks, narcissistic personality disorder is situated within the broader group of so-called "Cluster B" personality disorders, which are characterized by dramatic, emotional, or erratic patterns of behavior. Alongside NPD, this category includes antisocial personality disorder, borderline personality disorder, and histrionic personality disorder (APA, 2013). These disorders share certain features—such as impulsivity, difficulties in empathy, unstable interpersonal relationships, and a tendency toward manipulative or attention-seeking behaviors—yet they diverge in their core psychopathology.

Antisocial personality disorder emphasizes disregard for the rights of others, deceitfulness, and a lack of remorse, which can overlap with the exploitative and entitled aspects of NPD.

Borderline personality disorder is marked by instability in affect, identity, and relationships; though distinct, it can present with similar patterns of emptiness, shame, and fear of abandonment seen in vulnerable narcissism.

Histrionic personality disorder is characterized by excessive emotionality and attention-seeking, which parallels the admiration-seeking behaviors in NPD, albeit without the same grandiose self-concept.

Thus, the placement of NPD within Cluster B reflects its shared dramatic, emotional style and interpersonal dysfunction with these disorders, while preserving its unique core of grandiosity and self-esteem dysregulation.

The following table outlines the overlaps and distinctions between NPD and the other Cluster B disorders.

Table 2.

Overlaps and Distinctions between NPD and the Other Cluster B Disorders

Disorder	Core Features	Overlap with NPD	Distinctions
Narcissistic Personality Disorder (NPD)	Grandiosity, need for admiration, lack of empathy; fragile self-esteem masked by defensive superiority.	Shares impulsivity, manipulateness, and unstable relationships with other Cluster B disorders.	Core feature is regulation of self-esteem through admiration and grandiosity; oscillation between grandiose and vulnerable states.
Antisocial Personality Disorder (ASPD)	Disregard for the rights of others, deceitfulness, impulsivity, irresponsibility, lack of remorse.	Both exploit others and show lack of empathy.	ASPD is rooted in disregard for social norms and aggressive violation of others' rights, while NPD is centered on self-image and entitlement.
Borderline Personality Disorder (BPD)	Affective instability, fear of abandonment, unstable identity, impulsivity, self-harm behaviors.	Both may display emptiness, shame, and unstable relationships.	BPD is dominated by fear of abandonment and emotional instability, whereas NPD is defined by grandiosity and admiration-seeking.
Histrionic Personality Disorder (HPD)	Excessive emotionality, attention-seeking,	Both seek admiration and attention.	HPD centers on emotionality and seductiveness

superficial relationships, suggestibility.	without the grandiose self-concept characteristic of NPD.
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Understanding the placement of NPD within Cluster B, and its points of overlap and divergence with related disorders, provides an important foundation for clinical practice. These insights not only refine diagnostic accuracy but also shape therapeutic strategies, which must account for both the shared features of Cluster B pathology and the specific dynamics of narcissistic functioning. The following section turns to treatment approaches, examining how psychodynamic, schema-focused, and integrative models address the challenges of working with narcissistic personality disorder.

Neurobiological and Biopsychosocial Perspectives on Narcissistic Personality Disorder

Neurobiological research has increasingly contributed to the understanding of narcissistic personality disorder (NPD), highlighting the interaction between biological vulnerability, psychological organization, and social-contextual influences within a biopsychosocial framework. Personality disorders are not merely the expression of isolated biological factors or responses to external stressors, but emerge from dynamic interactions among genetic predispositions, neural functioning, affect regulation, and interpersonal environments (Paris, 1993).

Twin studies suggest moderate to high heritability of narcissistic traits, with estimates of approximately 77% in clinical samples and 24% in the general population (Torgersen et al., 2000, 2008). Despite these findings, relatively few studies have examined the specific neurobiological mechanisms associated with NPD. Existing neuroimaging research consistently implicates dysfunctions within frontal-limbic and paralimbic networks, particularly the anterior insular cortex, a region involved in emotional awareness, empathy, norm processing, trust, and social decision-making (Gu et al., 2013; Zaki et al., 2012). Meta-analyses further demonstrate reduced gray matter volume in the left anterior insula and adjacent paralimbic regions, including the anterior cingulate cortex and medial and dorsolateral prefrontal areas (Fan et al., 2011; Schulze et al., 2013).

These structural and functional alterations are strongly associated with impairments in emotional empathy and affect regulation—core features of NPD—though their impact likely extends beyond empathy alone. From a psychosocial perspective, individuals along the NPD spectrum demonstrate disturbances in emotional reasoning, particularly in contexts involving perceived threat, unfairness, or entitlement, which contribute to maladaptive interpersonal behavior, poor decision-making, and norm violations (Ronningstam, 2016).

Treatment of Narcissistic Personality Disorder

Psychodynamic Approaches

Most psychiatrists and psychologists agree that narcissistic personality disorder (NPD) represents a relatively stable condition when it manifests as a primary personality organization. Stephen M. Johnson (1987; 1994) emphasized that psychodynamic treatment strategies should be adapted to the severity and structural level of pathology, with different interventions proving effective across the spectrum of narcissistic functioning (Kernberg, 2008).

Traditional psychodynamic approaches focus on transference dynamics and the structural organization of narcissistic pathology. Kernberg (1984, 1992, 2007), drawing on object relations theory, highlighted the central role of envy, aggression, and primitive defenses such as splitting, idealization, and devaluation in shaping the interpersonal functioning of narcissistic patients. From this perspective, narcissistic pathology reflects poorly integrated self- and object-representations, resulting in unstable self-esteem, impaired capacity for intimacy, and chronic interpersonal conflict. The primary therapeutic aim is the gradual integration of these fragmented representations, allowing for the development of a more cohesive, realistic, and stable self-structure (Kernberg, 2007; Ronningstam, 2016).

Within contemporary psychodynamic practice, these principles have been operationalized in structured treatments such as Transference-Focused Psychotherapy (TFP). TFP conceptualizes the therapeutic relationship as the primary context in which dominant internalized object relations become activated and available for systematic examination. In patients with NPD, transference manifestations often involve oscillations between idealization and devaluation of the therapist, entitlement, contempt, and heightened sensitivity to perceived humiliation or loss of control (Kernberg, 2007; Gabbard, 2014).

Countertransference reactions are particularly salient in the treatment of narcissistic patients and constitute an important source of clinical information. Therapists may experience pressure to comply with grandiose expectations, feelings of irritation, inadequacy, boredom, or rescue fantasies. Authors such as Kernberg (2007) and McWilliams (2011) emphasize that these reactions often mirror the patient's internal world and must be reflected upon rather than enacted. Maintaining a clearly structured therapeutic frame—through explicit boundaries, consistency, and an active but reflective stance—is essential for managing resistance and sustaining the therapeutic process.

Over time, successful psychodynamic work with narcissistic patients is associated with improved affect regulation, greater tolerance of ambivalence and dependency, and an increased capacity for empathy and reciprocal relationships (Ronningstam, 2016; Gabbard, 2014). Nevertheless, this approach remains clinically demanding and is often challenged by fragile therapeutic alliances and recurrent cycles of idealization and devaluation, making long-term treatment and, in some cases, adjunctive interventions necessary to ensure stability and engagement.

Cognitive-Behavioral Therapy (CBT)

In contrast to psychodynamic approaches, which emphasize personality structure, transference processes, and the integration of split self- and object-representations, cognitive-behavioral therapy (CBT) focuses on the identification and modification of maladaptive beliefs, emotional responses, and behavioral patterns that maintain narcissistic pathology. CBT conceptualizes narcissistic dysfunction primarily in terms of distorted self-appraisals, maladaptive coping strategies, and deficits in emotion regulation and

interpersonal functioning, rather than unconscious conflict or structural personality organization (Beck, Freeman, & Davis, 2004; Millon, 2011; Ronningstam, 2016).

Cognitive-behavioral therapy (CBT) for narcissistic personality disorder is a structured, goal-oriented approach that emphasizes collaboration, clearly defined therapeutic boundaries, and the gradual modification of maladaptive beliefs and behavioral patterns (Beck, Freeman, & Davis, 2004; Millon, 2011; Ronningstam, 2016). Early phases of treatment focus on establishing a workable therapeutic alliance, introducing the cognitive model, and defining realistic goals. Individuals with NPD frequently present ambivalence toward change and heightened sensitivity to perceived threats to self-esteem, which complicates engagement and requires careful pacing (Ronningstam, 2016; Caligor et al., 2015).

Because emotional vulnerability and self-disclosure are particularly challenging for narcissistic patients, behavioral interventions are often introduced before more cognitively demanding techniques. Treatment typically alternates between increasing responsibility for behavior, reducing maladaptive affective reactions such as irritability and rage, and gradually restructuring dysfunctional attitudes toward self and others (Livesley, 2003; Millon, 2011). This phased approach allows therapists to maintain engagement while addressing entitlement, hypersensitivity to criticism, and interpersonal defensiveness.

Cognitive restructuring targets rigid grandiose beliefs and dichotomous thinking patterns by encouraging patients to generate and test alternative beliefs that support a more realistic self-concept, such as tolerating imperfection and valuing cooperation over competition (Beck et al., 2003; Ronningstam, 2011). CBT interventions also address narcissistic fantasy life by replacing unrealistic, admiration-seeking fantasies with attainable and intrinsically rewarding goals, thereby shifting motivation from external validation to intrinsic satisfaction (Beck et al., 2003; Ronningstam, 2016).

Deficits in empathy and reciprocal interpersonal functioning are addressed through structured techniques such as role reversal and guided perspective-taking, which increase awareness of others' emotional experiences and promote more flexible relational patterns (Dimaggio et al., 2015; Behary & Davis, 2015). Although CBT with individuals diagnosed with NPD is clinically demanding, outcomes are more favorable when clear limits are maintained, maladaptive beliefs are systematically modified, and affective and behavioral regulation is explicitly targeted (Beck et al., 2004; Livesley, 2003; Ronningstam, 2016).

Dialectical Behavior Therapy (DBT)

Dialectical Behavior Therapy (DBT), developed within the cognitive-behavioral tradition (Linehan, 1993), represents a structured, skills-based approach originally designed to address emotional dysregulation. In the treatment of narcissistic personality disorder (NPD), DBT is not conceptualized as a primary intervention targeting personality structure, but rather as a stabilizing approach aimed at improving affect regulation and behavioral control, thereby facilitating engagement in longer-term psychodynamic or schema-focused therapies (Ronningstam, 2016; Caligor et al., 2015).

DBT focuses on four core skill domains that address areas commonly compromised in NPD. Mindfulness enhances awareness of emotional states, thoughts, and bodily reactions, providing a foundation for self-regulation. Emotion regulation strategies target intense affect such as rage and shame, while distress tolerance skills increase the capacity to endure

frustration and psychological discomfort without resorting to maladaptive behaviors. Interpersonal effectiveness training supports the development of more adaptive communication, boundary-setting, and reciprocal relating (Linehan, 2015).

By reducing affective escalation, impulsivity, and interpersonal disruption, DBT helps contain behaviors that frequently interfere with therapeutic engagement. Within an integrative, phase-based model of treatment, DBT is therefore most effective as an adjunctive intervention that supports emotional stability and prepares patients with NPD for more expressive psychodynamic work focused on identity diffusion, aggression, and maladaptive relational patterns.

Schema Therapy

In recent decades, increasing attention has been directed toward cognitive-emotional perspectives in the understanding of narcissistic pathology. In this vein, Jeffrey Young (1994) identified the central role of shame in NPD, conceptualizing the Defectiveness/Shame Schema as a core feature, alongside Emotional Deprivation and Entitlement Schemas. These maladaptive schemas give rise to three coping modes:

- Surrender: choosing critical or demeaning partners and internalizing negative self-views.
- Avoidance: withholding emotions or thoughts to prevent anticipated rejection.
- Overcompensation: adopting superiority or perfectionism to mask inner vulnerability.

Not all patients display all three coping responses, but they represent defensive adaptations to underlying feelings of inadequacy. This aligns with schema therapy formulations (Young, Klosko, & Weishaar, 2003; Arntz & Jacob, 2012), which describe maladaptive schemas as the drivers of narcissistic defenses. From this perspective, narcissistic behaviors—whether arrogant and dismissive or withdrawn and insecure—function as strategies to regulate fragile self-esteem and defend against chronic shame.

Techniques and Efficacy of Schema Therapy

Schema therapy is particularly valuable for patients who struggle with chronic instability of self-esteem and difficulties in forming authentic relationships. In clinical work with narcissistic patients, schema therapy requires a therapeutic stance that balances empathic attunement with firm limit-setting, particularly in addressing entitlement, avoidance of vulnerability, and shame-based coping modes (Behary, 2008; Behary & Davis, 2015). It combines cognitive, behavioral, experiential, and attachment-focused techniques such as:

- Emotional awareness and mindfulness to recognize maladaptive patterns.
- Limited reparenting to provide corrective emotional experiences.
- Imagery rescripting to reprocess traumatic early experiences.
- Experiential exercises to develop healthier modes of relating to self and others.

Modern adaptations (Arntz & Jacob, 2012; Bamelis, Evers, Spinhoven, & Arntz, 2014) have demonstrated the effectiveness of schema therapy in treating a range of personality disorders, including NPD. Randomized controlled trials show that these interventions help patients recognize and modify shame-based schemas, build healthier coping strategies, and develop a more stable and authentic sense of self-worth.

Existential Perspectives

From an existential perspective, narcissistic pathology is understood not primarily as excessive self-regard, but as a defensive response to diminished self-awareness and confrontation with existential concerns such as isolation, mortality, freedom, and meaninglessness. Irvin Yalom (1980) conceptualized grandiosity as a defense against existential anxiety and isolation, noting that narcissistic patients often avoid authentic relatedness in order to preserve a sense of invulnerability. Similarly, James Bugental (1999, 2000) described such individuals as living with reduced experiential awareness, operating “on automatic pilot” and remaining disconnected from their immediate emotional experience. Contemporary existential authors, including Kirk Schneider (2008, 2010) and Emmy van Deurzen (2010, 2016), further emphasize narcissistic functioning as a crisis of meaning and identity shaped by cultural emphasis on image and external validation. Within this framework, therapeutic change emerges through expanded self-awareness, presence, and engagement with existential realities rather than direct modification of narcissistic defenses.

Integrative Perspectives

Contemporary clinical practice increasingly emphasizes integrative approaches in the treatment of narcissistic personality disorder (NPD), reflecting the recognition that narcissistic pathology is heterogeneous and cannot be adequately addressed through a single therapeutic model. Integrative frameworks combine psychodynamic formulations of personality structure and relational patterns with schema-focused, cognitive-behavioral, and skills-based interventions, allowing treatment to be tailored to the patient’s dominant narcissistic configuration and level of functioning (Ronningstam, 2016; Caligor, Levy, & Yeomans, 2015).

Within such models, treatment is often phase-based. In early stages, structured interventions derived from Cognitive-Behavioral Therapy or Dialectical Behavior Therapy are used to stabilize affective dysregulation, reduce impulsive or maladaptive behaviors, and support therapeutic engagement. As emotional regulation and relational stability improve, more expressive psychodynamic work can be gradually introduced to address deeper issues of identity diffusion, aggression, and maladaptive relational patterns enacted within the therapeutic relationship (Clarkin, Yeomans, & Kernberg, 2006; Yeomans et al., 2015).

Overall, although the treatment of NPD remains clinically demanding, integrative psychotherapy offers a coherent framework for addressing both defensive grandiosity and underlying psychological fragility. By flexibly sequencing interventions and adapting therapeutic focus to the patient’s predominant patterns, integrative approaches increase the likelihood of sustained engagement, improved affect regulation, and more adaptive interpersonal functioning.

From an integrative viewpoint, psychotherapeutic change may be understood as facilitating greater coherence between limbic affective systems and prefrontal regulatory processes, reflected in improved capacities for emotion regulation, self-reflection, and interpersonal functioning (Schoore, 2003; Northoff et al., 2006). Although the precise neural mechanisms of change remain under investigation, converging theoretical and empirical evidence suggests that diverse psychotherapeutic approaches—psychodynamic, cognitive-behavioral, schema-based, and skills-focused—may promote clinical improvement through shared pathways involving affect regulation, self-coherence, and social-cognitive functioning (Fonagy & Target, 2002; Cozolino, 2010; Caligor, Levy, & Yeomans, 2015; Ronningstam, 2016).

Conclusion

Narcissistic personality disorder remains a significant clinical and theoretical challenge due to its complex presentation, heterogeneity, and substantial impact on interpersonal functioning and psychological well-being. The findings reviewed in this paper support the view that NPD is not defined by genuinely elevated self-esteem, but rather by maladaptive self-regulatory processes rooted in vulnerability, internalized shame, and reliance on external validation. Understanding the distinction between healthy narcissism, self-esteem, and pathological narcissism is therefore essential for both accurate diagnosis and effective clinical intervention. Despite ongoing debates surrounding classification and treatment, converging evidence from psychodynamic, cognitive-emotional, and neurobiological research underscores the importance of viewing NPD as a multidimensional condition shaped by the interaction of early relational experiences, psychological defenses, and biological vulnerability. While therapeutic engagement is often complicated by resistance, entitlement, and fragile self-esteem, contemporary clinical approaches suggest that meaningful change is possible when treatment is flexibly tailored to individual patterns of functioning. Future research should continue to integrate neurobiological findings with psychological and interpersonal models in order to refine both diagnostic frameworks and treatment strategies. Overall, NPD demands an integrative and nuanced approach that acknowledges the interplay between self-concept, affect regulation, and relational dynamics, thereby supporting more effective and ethically grounded clinical practice.

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The Importance of Classmate Support for Problematic Online Gaming: A Study of Macedonian Adolescents

Marijana Markovikj¹, Eleonora Serafimovska²

¹ Institute for Sociological Political and Juridical Research

² Ss. Cyril and Methodius University in Skopje, North Macedonia

Abstract

Adolescents are at particularly high risk of excessive use of digital technology, which can negatively impact their mental and physical health, the dynamics and quality of their interactions within their families, peer groups, schools and wider communities as well as behavioral problems (deviant behavior, self-harm). Hence, the impact that new technologies have on adolescents' mental and physical health and well-being is a particular research challenge in the new digital age. The literature suggests that adolescents may develop gaming addictions similar to substance addictions. Alongside gambling disorder, gaming disorder is one of the few forms of problematic internet use that has been formally classified as a disorder. According to the American Psychiatric Association (2013), it is defined as Internet Gaming Disorder (IGD) in the DSM-5 with the notation "condition for further study", according to the World Health Organization as Gaming Disorder (GD) in the ICD-11. This study aimed to examine the correlation between classmate support with the tendency for excessive or problematic online gaming. The main research question is formulated as: How is peer/classmate support related to the expression of Problematic Online Gaming behaviors among adolescents? A survey was conducted during 2021 and 2022 across 10 high schools in Macedonia using the Qualtrics platform, with 301 adolescents (49.8% male, 50.2% female) aged 15 to 18. A convenience sample was used, selected based on parental and student consent. The study used well-established psychometric instruments: the Internet Gaming Disorder Scale (IGDS9-SF), and the Classmate Support Subscale from Child and Adolescent Classmate's Support Scale (CASSS). Findings indicated that classmate support is associated with a lower tendency for Problematic Online Gaming ($r = -0.21$, $p < 0.01$). The CASSS subscales—emotional, instrumental, appraisal, and informational support—showed that emotional, instrumental, and appraisal support were negatively correlated with problematic internet gaming, whereas informational support was not significantly correlated with problematic internet gaming. It can be assumed that classroom/peer support can be identified as a protective factor (or, if insufficient, as risk factor) for prevention of Problematic Online Gaming among adolescents.

Keywords: Internet gaming disorder, problematic online gaming, classmate support, adolescents, protective and risk factors

Introduction

Adolescents are particularly vulnerable to excessive use of digital technology as they have grown up in digital environments. In this context, problematic internet use (PIU) has emerged as a significant concern in the digital age, posing challenges for researchers and practitioners alike. PIU is commonly defined as an individual's inability to control internet use, resulting in adverse effects on daily functioning (Fineberg et al., 2018). It is more often viewed as a behavioral pattern that negatively affects daily life—such as reduced productivity, lower academic achievement, and impaired social relationships (Caplan, 2002). One of the most prominent forms of PIU is gaming disorder, which involves excessive engagement with online games that influences essential daily activities such as socializing, studying, working, eating, sleeping and self-care. This condition is marked by a loss of behavioral control and significant impairment in areas of psychosocial and physical functioning. The accessibility of games via portable devices, the opportunity for multiplayer interaction, and the potential for financial rewards or status enhancement contribute to the addictive potential of online gaming. Excessive gaming as a form of PIU is recognized as a form of **behavioral addiction** (Griffiths, 2005). Behavioral addictions are defined as repetitive, compulsive behaviors that lead to significant psychological distress and functional impairment, despite the absence of a psychoactive substance. These behaviors are marked by a progressive loss of control, continued engagement despite negative consequences, difficulty delaying gratification, and a persistent urge to recreate the initial euphoric experience associated with the behavior (Kuss & Griffiths, 2012). Individuals often experience several symptoms, including **obsession** (a persistent preoccupation with online activities), **neglect** (the abandonment of offline responsibilities and relationships), and **loss of control** (an inability to reduce or stop internet use, even when intending to do so). This perspective aligns with the biopsychosocial model of addiction (Griffiths, 2005), which emphasizes that addiction is not defined solely by the behavior itself, but by its context, consequences, and the individual's inability to regulate it. It also supports the view that gaming addiction should be understood as a context-dependent phenomenon, shaped by personal vulnerabilities and environmental factors (Kardefelt-Winther, 2014).

Global trends in digital behavior are increasingly reflected in Macedonian society. Children and adolescents actively engage and communicate in online spaces, frequently participating in digital or online gaming. In an effort to explore both protective and risk factors—and to determine whether cultural differences influence excessive gaming behavior—a multinational research study was conducted. Alongside Macedonia, the study included participants from the Czech Republic, Serbia, Finland, Kosovo, the United States, Chile, and Slovakia. The project was coordinated by Palacký University in Olomouc, Czech Republic. The primary aim of this international study was to gain a deeper understanding of the underlying causes that lead adolescents to engage in problematic gaming, to assess their level of psychological dependence, and to examine the extent to which this specific form of addiction affects their mental health and adaptation to their social environment. The research focus of this paper is to explore the role of classmate support in problematic gaming.

Considering that the sample was non-clinical, the broader construct of Problematic Online Gaming is employed in this study. Unlike Internet Gaming Disorder (IGD), which is a clinically defined disorder recognized in the DSM-5, Problematic Online Gaming (POG) is used more

flexibly to capture harmful gaming behaviors in non-clinical populations. Some authors (Király, Nagygyörgy, Griffiths, & Demetrovics, 2014) use the term “problematic online gaming” to avoid the terms *addiction* and *disorder*, thereby describing a broader range of unhealthy or excessive gaming behaviors.

The Dual Impact of Digital Games and Online Tools

While excessive gaming poses risks, digital games and online tools can also offer developmental benefits when used appropriately. According to Kim, Nam, and Keum (2022), moderate online gaming can enhance adolescent well-being by fostering social connections, improving memory, and developing problem-solving skills. However, when gaming becomes excessive, it may lead to impulsivity, aggression, and social withdrawal.

Adolescents who engage in online communication—whether through games, apps, or social media—become part of virtual communities that expand their access to information, learning, entertainment, and social support. Online gaming can help shy or socially withdrawn adolescents build friendships, maintain existing relationships, and develop new social ties (Domahidi et al., 2014; Valkenburg & Peter, 2007; Kuss & Griffiths, 2012, in Colder Carras et al., 2017). Many games incorporate text or voice chat features that facilitate collaboration and social bonding, often extending beyond the game itself (Trepte, Reinecke, & Juechems, 2012).

Moreover, digital tools and games can stimulate cognitive functions. Research has shown that even older adults exhibit increased neural activity during internet use. Certain applications can enhance memory, multitasking, and fluid intelligence, while others offer self-management and mental health interventions.

As the gaming industry continues to grow, digital games have diversified across genres—from strategic simulations requiring teamwork to simpler arcade-style games. Research has begun to explore how specific game characteristics influence players' psychological states. Findings suggest that the psychological effects of gaming vary depending on the nature of the game (Kim et al., 2022). King et al. (2010a, in Kim et al., 2022) categorize game structure into four key dimensions: social features, manipulation and control, narrative and identity, and reward and presentation. Griffiths (2010, in Kim et al., 2022) emphasizes that gaming addiction stems not from the medium itself, but from the design features of games. However, further research is needed to better understand the mechanisms and long-term effects of these technologies on brain function.

From a developmental perspective, online games can play a crucial role in adolescent socialization. In some cases, games even prompt players to explore aspects of their social identity. Salen and Zimmerman (2004) further emphasize that games often function as social contracts, where players agree to interact according to shared rules and meanings. This introduces children and adolescents to the importance of norms in social interaction. Williams et al. (2018) expand on this by describing how online games are structured through shared frameworks that guide behavior, identity, and communication. These frameworks help players distinguish between in-game and out-of-game roles, reinforcing social learning.

Massively multiplayer online role-playing games (MMORPGs) exemplify the social dimension of gaming. Unlike single-player games, MMORPGs require collaboration, competition, and communication with other human players. Participants not only play together but also form relationships, exchange information, and co-create norms that sustain the gaming environment (Eklund, 2015). Supporting this view, Gonçalves et al. (2023) conducted a systematic review of studies published between 1995 and 2020, highlighting the social outcomes of multiplayer gaming. Their findings reveal that digital games foster social interaction through shared interests, community building, and mutual support. This aligns with Feld's theory (1981) that social bonds often form around common activities. Multiplayer gaming provides both a focal point and a sense of belonging, which are key motivators for adolescent engagement (Trepte, Reinecke, & Juechems, 2012).

Online games are increasingly used as a medium for communication among players. Beyond extending interactions with offline friends, their appeal lies in the ability to choose companions based on shared interests, overcome geographical barriers, and communicate in ways that align with personal preferences (de Almeida et al., 2015).

Mental Health Implications of Digital Gaming among Adolescents

The line between healthy engagement and problematic gaming is crossed when the intensity and frequency of gaming begin to interfere with other essential life domains—such as family relationships, academic or work responsibilities, and offline hobbies. According to Jukschat (2021), it is only when extensive gaming leads to neglect of real-life obligations and conflict with social norms, values, and expectations that it becomes a social problem and may be classified as gaming addiction.

In recent years, it has been increasingly recognized that online gaming, particularly among younger users, may elevate the risk of social isolation by displacing time spent nurturing offline friendships (Trepte, Reinecke, & Juechems, 2012). This erosion of face-to-face social bonds is often attributed to the immersive and time-consuming nature of multiplayer games. Moreover, players are frequently exposed to cyberbullying and other forms of online aggression, which can have serious psychological consequences.

Recognizing the severity of excessive gaming, the World Health Organization (WHO, 2019) classified Gaming Disorder as a fully recognized mental health disorder within the category of behavioral addiction in the 11th Revision of the International Classification of Diseases (ICD-11). Similarly, the American Psychiatric Association (APA, 2013) included Internet Gaming Disorder in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), but it is listed as a “condition for further study” meaning that there is a need for more research before being formally diagnosed (Chew & Wong, 2022). The ICD-11 defines Gaming Disorder as: A pattern of persistent or recurrent gaming behavior (‘digital gaming’ or ‘video-gaming’), which may be online or offline, characterized by impaired control over gaming; increasing priority given to gaming over other activities, and continuation or escalation of gaming despite negative consequences. To be diagnosed all three core criteria must be met. For diagnosis, symptoms must persist for at least 12 months (or less in severe cases) and cause significant impairment in personal, social, educational, or occupational functioning (WHO, 2019).

The DSM-5 includes Internet Gaming Disorder as a condition for further study and not a formal disorder (Internet Gaming, n.d.). Unlike the ICD-11, it excludes general internet use,

online gambling, and social media. According to the DSM-5, there are nine diagnostic criteria (to be diagnosed, 5 out of 9 criteria must be met.) The proposed nine criteria include: preoccupation with gaming; withdrawal symptoms (e.g., sadness, anxiety, irritability); tolerance (needing more time to achieve satisfaction); loss of control over gaming time; neglect of previously enjoyed activities; continued gaming despite problems; deception about gaming habits; use of gaming to escape negative emotions; risk to relationships, education, or employment.

Prevalence estimates of Gaming Disorder (GD) reported in epidemiological studies across countries indicate relatively low but significant prevalence rates. For instance, in Germany, GD affects approximately 5.7% of adolescents and young adults aged 12–25 (Wartberg, Kriston, & Thomasius, 2017). In South Korea, prevalence is around 4.0% among adults aged 18–39 and 5.9% among adolescents aged 13–15 (Yu & Cho, 2016). In Slovenia, about 2.1% of 13-year-olds meet criteria for GD (Pontes, Macur, & Griffiths, 2016). There is no accurate data for Macedonia because ICD-11 has not yet been adopted. Problematic gaming is diagnosed according to ICD-10 under the category “other”.

Although these figures represent a minority, the severity of GD’s impact on physical and mental health justifies continued scientific attention (Schivinski et al., 2018).

Problematic gaming is frequently linked to broader mental health concerns (Tuncturk et al., 2023). High levels of internet addiction correlate with suicidal ideation and self-harm (Evren et al., 2014), and intentional self-harm is a major global public health issue with long-term consequences (Hawton, Saunders, & O’Connor, 2012). In terms of behavioral predictors, Miller et al. (2015) found that the intensity of problematic gaming is associated with rule-breaking behaviors. Other studies suggest that adolescents who exhibit problematic gaming are more likely to experience depressive moods (Yen et al., 2019).

Research highlights the impact of problematic gaming on adolescents’ daily routines and physical well-being. Gaming and internet addiction have been associated with increased sleep duration, disruptions in the sleep–wake cycle, and reduced sleep quality (Hawi, Samaha, & Griffiths, 2018; King & Delfabbro, 2019). These behaviors often extend to unhealthy eating patterns (Tetik et al., 2018). Moreover, increased sedentary screen time—including gaming, television viewing, and computer use—has been significantly correlated with obesity. Emerging research also draws parallels between pathological overeating and substance abuse (Carlier et al., 2015). In this context, Mallorquí-Bagué et al. (2017) found that individuals may exhibit a higher incidence of food addiction symptoms, suggesting overlapping mechanisms of behavioral deregulation.

Risk and Protective Factors for Gaming Disorder

Research into the risk and protective factors associated with problematic gaming highlights the influence of individual, familial, and social variables. Some adolescents turn to gaming as a means of forming relationships (Seok et al., 2018), while others exhibit problematic gaming behaviors linked to factors such as lack of close friendships, negative body image, and substance use (Männikkö et al., 2020). Mihara and Higuchi (2017) found that it is often associated with peer-related issues, including bullying—both as victims and perpetrators.

Family dynamics play a critical role. Greater emotional support from family members is associated with lower rates of gaming addiction (Kim, 2015), whereas high parental control and low warmth increase vulnerability (Schneider, King, & Delfabbro, 2017).

Peer relationships play a complex and influential role in the development and maintenance of problematic gaming, particularly during adolescence—a period marked by heightened sensitivity to social dynamics. Positive peer support can act as a protective factor against problematic gaming behaviors. Adolescents who feel emotionally supported and socially connected are less likely to engage in excessive gaming, as they have alternative sources of validation and companionship. Supportive peer environments promote healthy coping strategies and reduce the need to escape into virtual worlds. Conversely, peer rejection, conflict, and feelings of inferiority are strongly associated with intensive gaming symptoms. A 2024 study (Tan et al., 2024) found that peer-related distress was more central to the development of GD than parent-child or teacher-student relationships, highlighting the critical role of peer dynamics in adolescent gaming behavior. A 2025 longitudinal study revealed a bidirectional relationship between peer relationships and problematic gaming. Adolescents who lost significant relationships due to gaming were more likely to affiliate with peers who engaged in antisocial behaviors, such as substance use or theft. These affiliations, in turn, reinforced problematic gaming patterns (Gao et al., 2025).

Research Methodology

The main research question of the study is:

How does classmate support relate to the expression of Problematic Online Gaming behaviors among adolescents?

The hypothesis derived from the main research question is: *Higher levels of classmate support are associated with lower levels of Problematic Online Gaming among adolescents.*

Given the involvement of high school students, ethical approval was obtained from the Ministry of Education and Science. School principals were informed and consented to participate. The study was conducted by school-based pedagogical-psychological services. Participation was voluntary, and informed consent was obtained from both students and their parents/guardians. The consent form included: the purpose and procedures of the study; potential risks and benefits; assurance of voluntary participation and the right to withdraw at any time. To address potential distress from sensitive questions, contact information for the school psychologist was provided. The psychologist collaborated closely with the research coordinator.

The study was conducted between October 2021 and January 2022 using the Qualtrics platform (licensed by the University of Kentucky, a research partner). Data collection took place in school settings under the supervision of school psychologists. Students completed the survey on their mobile phones, with a completion time of between 20 and 40 minutes.

Sample

The study sample consisted of adolescents aged 15 to 19 years, drawn from ten high schools across Macedonia. Selection was based on school conditions and the willingness of students and their parents/guardians to provide informed consent.

A total of 301 students participated in the study, with a balanced gender distribution (49.8% male, 50.2% female). The mean age was 16.50 years (SD = 1.12). Regarding ethnicity, 91.4% of participants identified as Macedonian.

Instruments

Prior to cultural adaptation, permission was obtained from the original authors of each instrument. The adaptation process followed the back-translation method. After expert review, a final version was prepared and a pilot study was then conducted with ten adolescents. Table 1 presents the variables, instruments, and their authors.

Table 1.

Overview of Variables and Instruments

Variable	Instrument	Author(s)
Demographic Characteristics (age, gender)	Open-ended questions	Project Team
Gaming Addiction	Internet Gaming Disorder Scale – Short Form (IGDS9-SF)	Pontes & Griffiths (2015)
Classmate Support	Classmate Support Subscale ¹	Kerres, Malecki, & Kilpatrick Demaray (2002)

The study employed validated instruments to assess internet gaming-related behaviour: the Internet Gaming Disorder Scale – Short Form (IGDS9-SF), aligned with DSM-5 criteria. The Cronbach’s alpha for the Macedonian translation of the IGDS9-SF was 0.86, indicating high internal consistency. Classmate support in this study was assessed using the Classmate Support subscale from the Child and Adolescent Social Support Scale (CASSS) (Kerres Malecki, & Kilpatrick Demaray, 2002). The CASSS is grounded in Tardy’s Model of Social Support (Tardy, 1985, as cited in Kerres Malecki, & Kilpatrick Demaray, 2002). The CASSS (Kerres Malecki & Demaray, 2002) is based on social support, which conceptualizes support as multidimensional. The CASSS measures perceived support from different sources in a child/adolescent’s environment (Parent, Teacher, Classmate, and Close Friend Support). The Classmate Support Subscale (measures general peer support within the school context) has 12 items and two response dimensions: Frequency of support/perceived support (how often support is received) and Importance of support (how important that support is to the

¹ Classmate Support is a subscale of the Child and Adolescent Social Support Scale (CASSS). CASSS has four subscales: Parent Support, Teacher Support, Classmate Support, and Close Friend Support.

respondent). For the purpose of this study only the response dimension that measures frequency of support was included.

Research Results

A) Prevalence of Gaming Addiction

Before analyzing the interconnection between classmate/peer relation and problematic internet gaming, the prevalence rate will be presented. Although a score of 32 is commonly used as a clinical cutoff score on the IGDS9-SF, caution is advised in interpreting this cutoff, as the present study was conducted with a non-clinical population. Therefore, the classification should be viewed as indicative of elevated risk rather than a definitive clinical diagnosis. The results from the Internet Gaming Disorder Scale – Short Form (IGDS9-SF) indicated that 2% of respondents met the criteria for Internet Gaming Disorder (IGD).

B) Classmate Support

In this study, the Classmate support subscale of the Child and Adolescent Social Support Scale (CASSS) was used. It reflects cooperation, mutual respect, and is focused on peer/classmate relationships within the classroom. This scale measures how often adolescents receive support from their classmates. It is constructed of four subscales, each measuring four types of support: emotional, instrumental, appraisal, and informational. The scale consists of 12 questions and each of the four subscales has 3 questions. Answers are given on a five-point Likert-type scale (from 1 to 5). The following figure presents the participants' responses to the four subscales.

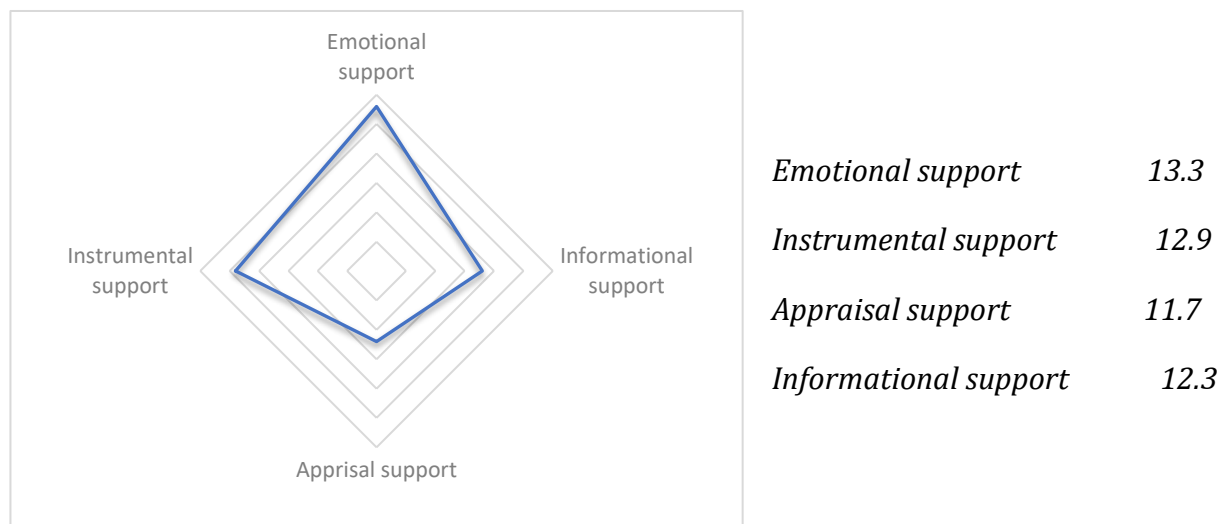


Figure 1. Perceived Peer/Classmate Support among Adolescents Based on Mean Scores on Each Subscale

Figure 1 shows the arithmetic means (the minimum score for each subscale is 3, and the maximum is 15) of the results obtained on the four subscales: a) emotional support (for example: “They treat me nicely”); b) informational support (for example: “My classmates give me good advice”); c) appraisal support (referring to feedback, for example: “My classmates notice when I work hard”); and d) instrumental support (for example: “My classmates help me with school projects”). According to findings, emotional support scored the highest (13.3), which indicates empathy and care among classmates. Next is instrumental support (12.9), which reflects practical help related to school activities followed by moderate informational support (12.3), which refers to guidance, advice, and sharing knowledge. Appraisal support (11.7) is lowest, which means that constructive feedback and affirmation are perceived as least available. In general, it can be concluded that the respondents received high scores on all four subscales, which points to the conclusion that they perceive that they receive adequate support from their classmates. According to the results, the support system that adolescents receive from their classmates is expressed in emotional and informational dimensions, but it would be necessary to strengthen it in the informational and appraisal aspect of support which can create a more balanced and comprehensive support.

c) Relationship between Classmate Support and Problematic Gaming

Pearson's correlation coefficient was used to measure the strength and direction of the linear relationship between two variables: perceived classmate support (measured by the Classmate Support Scale, subscale of the CASSS) and problematic internet gaming behavior (measured by the IGDS9-SF). The results show a significant negative correlation ($r = -0.21$, $p < 0.01$). This type of association between two variables indicates that individuals who perceive that they often receive peer/classmate support are less likely to manifest problematic gaming. Namely, adolescents who have higher scores on the Classmate Support Scale have lower scores on IGDS9-SF. The obtained statistical significance highlights classmate support as a protective factor, i.e., if adolescents feel supported by their classmates, they are less likely to engage in excessive or maladaptive gaming patterns.

The coefficients of correlation between four subscales of the Classmate Support Scale (emotional, informational, appraisal, and instrumental) and IGDS9-SF are presented in Table 2.

Table 2.

Correlation between Problematic Gaming and Aspects of Classmate Support

Subscales of Perception of frequency of IGDS9-SF (r) received classmate support	
Emotional	-0.18 ($p < 0.01$)
Informational	-0.09 ns
Appraisal	-0.22 ($p < 0.01$)
Instrumental	-0.25 ($p < 0.01$)

The obtained values of the Pearson correlation coefficient show that some aspects of peer/classmate support are significantly associated with problematic internet gaming. Instrumental support ($r = -.25, p < 0.01$) and appraisal support ($r = -.22, p < 0.01$) have a significant negative association with problematic internet gaming. These data indicate that in the case when classmates provide practical help or give constructive feedback, adolescents are less likely to exhibit problematic online gaming behaviors. The same tendency, but less pronounced, is observed in relation to Emotional support ($r = -.18, p < 0.01$). Namely, these data indicate that empathy and care for classmates have the potential to reduce the intensity and manifestation of problematic internet gaming. On the other hand, no correlation was found with problematic internet gaming and informational support ($r = -.09$). This data indicates that advice or guidance from classmates does not appear to influence the way adolescents play internet games. A summary conclusion can be drawn that certain aspects of classmate support (instrumental, appraisal, and emotional) negatively correlate with problematic internet gaming, while informational support may not be sufficient to act as a protective factor.

Conclusion

This study offers important insights into the psychosocial correlates of problematic gaming among adolescents in Macedonia, contributing to the broader international discourse on gaming-related behavioral addictions. By employing widely recognized and psychometrically validated instruments, including the IGDS9-SF based on DSM-5 criteria, this research provides an understanding of how disordered gaming manifests in a non-clinical adolescent population. The findings revealed that 2% of participants met the threshold for Internet Gaming Disorder according to the results on the IGDS9-SF scale (cutoff score = 32). These prevalence rates, though relatively low, are consistent with international estimates and underscore the importance of early identification and monitoring of at-risk youth (Pontes et al., 2019). The data obtained from Classmates Support Subscale of the Child and Adolescent Social Support Scale (CASSS) reported that adolescents have the perception that they are receiving classmate support frequently.

The present analysis demonstrates that peer/classmate support is significantly associated with lower levels of problematic gaming among adolescents. Using Pearson correlation coefficients, the results revealed that emotional, instrumental, and appraisal support are negatively correlated with gaming problems, with instrumental and appraisal support showing the strongest protective effects. Emotional support plays an important role, though to a slightly lesser degree, while informational support did not show a significant relationship. The negative correlation between classmate support and problematic online gaming highlights the critical role of peer/classmate relationships in adolescent development and suggest that strong social support networks may be a protective factor against the development of problematic internet gaming behaviors (Hellström et al., 2012).

Implications and Recommendations

The findings of this study carry important implications for educators, parents, mental health professionals, and policymakers. Given the complex interplay of individual and social factors contributing to problematic internet gaming, prevention and intervention efforts must be multi-layered. Schools should incorporate digital literacy and emotional resilience training into their curricula to help adolescents develop healthy online habits and coping strategies. Peer support networks should be fostered through inclusive school environments and

extracurricular activities that promote collaboration and belonging. Finally, policymakers should support evidence-based programs that address digital well-being and fund further research to refine diagnostic tools and intervention strategies. By adopting a holistic, socio-ecological approach, stakeholders can more effectively safeguard adolescent mental health in the digital age. For professionals working with children and adolescents, the implications are clear. Interventions should prioritize strengthening emotional bonds, fostering constructive peer feedback, and ensuring access to tangible assistance, as these forms of support are most effective in buffering against problematic gaming behaviors.

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Music-Induced Ethnocultural Empathy: Promoting the Power of Ethnocultural Empathy through Jazz and Film Music

Simen Christensen Grøgaard¹

¹*Kristiania University College, Oslo, Norway*

Abstract

“I believe that all people are in possession of what might be called a universal musical mind”. These words from the musician Bill Evans present an idea analogous to Noam Chomsky’s “universal grammar theory” in linguistics. At least, we could recognize the existence of a human “universal aesthetic mind”. As Western societies today are experiencing widespread changes due to globalization, migration, modernization, and rapid digitalization, it is crucial to strengthen interethnic bonds. Moreover, the quest for peaceful coexistence and strong intercultural relations in modern multicultural societies is a prominent political priority in the West today. Music provides communicative possibilities between listeners and gives a basis for common attention and experiences of deep emotional involvement and intimacy. This could terminologically be related to both empathic affordances and social bonding, as well as cohesion. Could artistic creations in the form of organized sound (music) in various forms contribute to the facilitation of ethnocultural empathy? Jazz already represents a cosmopolitical reality through its origins and synthesis, while film music probably is one of the most common forms of musical consumption today. Furthermore, film music could be considered as a contemporary classical and universal artistic tradition appearing in multimedia contexts. The article investigates and discusses whether ethnocultural empathy already is aestheticized and institutionalized in the great worldwide “databases” of jazz (history) and film music. Finally, two musical examples serve as an illustration of how jazz and film music could contribute to ethnocultural empathy.

Keywords: ethnocultural empathy, empathic affordances, jazz, film music, universal aesthetic mind, cosmopolitanism

Introduction

“I believe that all people are in possession of what might be called a universal musical mind. Any true music speaks with this universal mind, to the universal mind in all people. The understanding that results will vary only in so far as people have or have not been conditioned to the various styles of music in which the universal mind speaks. Consequently, often some effort and exposure is necessary in order to understand some of the music coming from a different period or a different culture than that to which the

listener has been conditioned” – Jazz pianist Bill Evans (cited in *The Universal Mind of Bill Evans*, 1966).

We live in an age where the internet and international communication are taken for granted (Clarke et al., 2015). Today's society enables large amounts of information dissemination. The internet and communication technology enable interactions of several different cultures at the same time. Not the least, the rapid development and speed of innovations in new music technology enables a musical update of older musical traditions (Ruud, 2016, p. 294). Technological development creates arenas for complex exchange of cultural information. As Bandura (2001) points out: “The evolving information technologies will increasingly serve as a vehicle for building social networks” (p. 29). In this way, music can represent a form of social capital translating into increased social interaction (Ruud, 2016, p. 108). The Russian (cultural) developmental psychologist Lev Vygotsky has pointed out that people are rooted in their cultural context. However, this context is constantly changing, and as the plastic human brain, the ecological circumstances are dynamic as well. Ongoing extensive technological innovations and globalization make more intense multicultural musical experiences possible. Music from various cultures creates opportunities for *cultural hybridization* that can lead to adjustments in attitudes towards one another (Knudsen, 2010). This article investigates and discusses the following question: Is it possible that, and eventually how can music evoke and induce ethnocultural empathy?²

In general, and in accordance with broad literature (Clarke et al., 2015; Li et al., 2023; Marsh, 2019; Miranda & Gaudreau, 2020), music is something that operates in a social and cultural context. Nevertheless, as the orientalist Edvard Said remarks, it is also an art form that undeniably is based on individual performance, reception or production (Said, 2005, p. 12).

As Clarke et al. (2015, pp. 61–62) point out:

Music is a source of intense experiences of both the most intimate and solitary, and public and collective, kinds – from an individual with their smartphone and headphones, to large-scale live events and global simulcasts; and it increasingly brings together a huge range of cultures and histories, through developments in world music, sampling, the re-issue of historical recordings, and the explosion of informal and home music-making that circulates via YouTube.

This article aims at exploring and illuminating intercultural communicative and empathic affordances of music. With emphasis on two selected examples of music, derived from and operating in various contexts, the article interprets jazz and film music as potentially powerful tools in disseminating ethnocultural empathy and intercultural identity.

Theory and Key Concepts

There is no strict consensus about the nature of empathy (Rasoal et al., 2011). The historical and central psychological concept of empathy was coined by Edward Titchener in 1909 (Cuff et al., 2016). For instance, Krueger (2013) understands empathy broadly as an essential capacity to immediately take part in other people's thoughts, feelings and intentions. Thus, empathy can be considered a form of intimacy involving perceived caring

² The term ethnocultural empathy is used synonymously and interchangeably with interethnic empathy throughout the article.

and sharing of experiences (Rasoal et al., 2011), as well as understanding in the moment. Both the intentional element in perception and perspective-taking is emphasized. Furthermore, empathy is often detached from any form of reciprocity in physical and social interaction. This means that empathy could be a mere aesthetic projection, as originally understood by the philosopher Theodor Lipps (Zahavi, 2010).

A Universal Empathy Mechanism

According to psychologist Simon Baron-Cohen, empathy is a scientifically measurable trait (Clarke et al., 2015). Thus, the concept of empathy can be operationalized and used in psychometric research. Modern brain imaging techniques make it possible to measure how people respond to musical stimuli. Mirror neurons are a type of brain component (discovered by Giacomo Rizzolatti) that appears to play a role in movement mimicry and imitation of emotional patterns (Gazzaniga et al., 2009). The mirror neuron system (which consists of a collection of nerve cells in the brain) has been linked to empathy, imitation, and understanding the actions of others (Heyes, 2010; Molnar-Szakacs & Overy, 2006). Listening to music enables different forms of synchronization and movement imitation in humans (Jacoboni, 2009; Wilson & Knoblich, 2005). These specialized neurons and neural pathways (the network or circuit of the mirror neuron system) testify that one can become emotionally “infected” by being exposed to music. This can happen via various mechanisms such as synchronization and “entrainment” (copying gestures) or through musical elements such as dynamics and harmony. Entrainment involves keeping the beat, which implies motor coordination of movements between listeners and the music, as well as temporal coordination in the listeners’ responses (McGuinness & Overy, 2011). A possible mechanism in a musical context is that sound waves and observed gestures activate the mirror neuron system, which further creates emotionality and higher-order emotional responses such as empathy (Molnar-Szakacs & Overy, 2006, p. 3). Empathy can therefore be described as a higher order mental process or a complex emotion.

One gateway to the understanding of empathy in developmental psychology goes through the concept of Theory of Mind (ToM). ToM refers to the representation of the mental states of others, despite our personal states of mind, through our own conceptual system (Gallese, 2001). The capacity for *mentalization* – as an imaginative cognitive process – is considered a key element in empathy responses. ToM can also be understood as the ability to understand people as conscious and acting creatures with feelings, intentions, perceptions, and desires (Allesch, 2016).

Music and Ethnocultural Empathy in Modern Contexts

Through music,^{3,4} people can experience strong emotions. Sometimes even the boundaries between subjects can break down, and music enables transition into an *overlapping*

³ I will not give a formal definition of music, but one possibility is understanding the phenomenon in accordance with the composer Edgard Varèse as organized sound, or rather as an event characterized by the dynamics between (organized) sound and silence (cf. John Cage).

⁴ It is important to recognize the phenomenological nature of meaning (both as a concept and perceived reality).

intersubjectivity characterized by deep (mutual) empathy. According to McGuiness & Overy (2011), inspired by the music sociologist Tia DeNora, it is more appropriate to call this experience “co-subjectivity”. DeNora understands co-subjectivity as “the result of isolated individually reflexive adaptations to an environment and its materials” (cited in McGuiness & Overy, 2011, p. 255). In general, aesthetic impressions and narratives can be related to the initiation of empathic processes (Freedberg & Gallese, 2007) and might even predict more tolerance in communication (Laird, 2015).

According to Koss (2006), empathy enables us to build bridges between “radically different subject positions, both within and across historical periods and geographical zones” (p. 139). In this sense, empathy through music (in social contexts) can be thought of as an impetus for laying the foundation for peaceful multicultural coexistence in modern societies. If music can help to promote ethnocultural empathy, i.e., that the musical experience can help to internalize and tolerate cultural expressions from other contexts, this can be argued to strengthen the foundation for peaceful multicultural coexistence. In other words, it is important to be exposed to so-called “parasocial contact”, or to be stimulated by musical impressions from a so-called “out-group” (Harwood, 2017, p. 18).

Music can communicate emotions effectively in a way language often cannot. As Klempe (2016) indicates, music is perhaps a more honest form of expression than other communication forms. This often makes music less ambiguous than language when it comes to interpreting emotional communication. These properties make music effective for communicating emotions and more complex emotional or conscious states such as empathy.

Ethnocultural Empathic Affordances in Music?

The popular interdisciplinary concept *affordances* (Gibson, 1986/1979) concerns what the environment can afford an individual. One such affordance in a musical setting is *meaning*.³ Nevertheless, how music mediates meaning depends on both the cultural context and the individual respondents. Ethnocultural empathy recognizes the heterogeneous nature of empathy across various culturally based understandings of the concept (cf. Rasool et al., 2011). According to Wang et al. (2003) ethnocultural empathy includes cognitive, affective, and communicative dimensions. This variable can be measured psychometrically with the 31-item questionnaire called the Scale of Ethnocultural Empathy consisting of four sub-domains: empathic feeling and expression, empathic perspective taking, acceptance of cultural differences; and empathic awareness. There are multiple ways to engage in *intercultural musicality*. For instance, «Rich intercultural music engagement» (RIME) is a formalized method for promoting intercultural bonds (Li et al., 2023). In this context, music works as a tool for interethnic social connectedness or reduced cultural bias. Exposure to musical stimuli from other cultures serves as a tool for activating emotions and associations that could increase positive attitudes towards other people of various backgrounds (Harwood, 2017).

Musical Interpretations

To illustrate the potential ethnocultural empathic affordances of music, I have chosen two music pieces (sound demonstrations) associated with real historical figures geographically located outside of the Western hemisphere. These two persons are respectively the last Chinese emperor Puyi, as well as the Congolese resistance hero and anti-colonial activist

Patrice Lumumba. Both musical pieces are available in digital media (e.g. on Spotify and YouTube). The first example is a composition by the Japanese composer Ryuichi Sakamoto (1952–2023) from *The Last Emperor* merging Western and classical sound elements with Eastern music traditions, thus representing both a fusion of and tension between Western and Eastern musical elements (Ni, 2021). The other example is a composition from the Norwegian musician Alfred Jansons (1937–2019), even more likely to be perceived as an “ambivalent” soundscape. In both cases I will emphasize cultural-contextual features in combination with selected musical observations.

Example 1: *First Coronation* (1987) by Ryuichi Sakamoto⁵

Bernardo Bertolucci's film *The Last Emperor* (1987) is a powerful example of how music can be used to build bridges between cultures and provide the audience with an empathetic entry into a foreign story. The music intentionally represents a blend of Western and Eastern music styles (Ni, 2021) as the film's entire soundtrack was composed by Sakamoto, David Byrne, and Cong Su. This collaboration of Japanese, Western, and Chinese musicians speaks for itself as an expression of cultural crossover (Yu & Ahn, 2025). The music distinctively combines diverse cultural expressions, making the audience able to feel both at home and alienated simultaneously, potentially producing potent ambiguity or even ambivalence (Ni, 2021). Even though *The Last Emperor* could be considered a Western production, scenes are also filmed in China (some remarkable scenes were filmed in “The Forbidden City”). The film was awarded for its sophisticated cinematography (Cheng, 2019).

First Coronation is an orchestral piece by Sakamoto containing pentatonic tonal structures characteristic of Chinese and, in general, Eastern music (Yu & Ahn, 2025). This tonal structure is used in various film scores, such as exemplified in the piece *Hero* (by Hans Zimmer and John Powell) from *Kung Fu Panda* and might serve the purpose of evoking Eastern cultural associations. The use of modal scales (e.g. pentatonic scales) gives an Eastern “color” that reinforces the sense of cultural identity and probably evokes “exotic” aesthetic sensations. By synthesizing Western orchestral classical music with Chinese instruments in *First coronation*, the soundscape reflects the film’s intercultural context and potentially serves as an aesthetic expression of ethnocultural empathy.

Through the mix of the foreign (Chinese instruments, pentatonic scales) and the familiar (e.g. Western harmonica, lyrical melodies), the music opens up various reflections and interpretations, which in combination might contribute to a sensation of ethnocultural empathy. These soundscape dynamics make it easier for the audience to empathize with Puyi's life and thus experience a form of intercultural empathy. In general, *The Last Emperor* demonstrates how film music can function as an *aesthetic space* where different musical languages meet and merge. And if empathy is not the ultimate result, at least we can expect a degree of curiosity about “The Other”.

⁵ Ryuichi Sakamoto (1987). *First Coronation* [Soundtrack]. Virgin Records Limited. Retrieved from <https://www.youtube.com/watch?v=lb84zmd5j48>

Example 2: *Patrice Lumumba* (1966) by Alfred Janson⁶

In the jazz composition *Patrice Lumumba* the dramaturgical element is salient. In this experimental and complex piece, the title and context themselves frame and set the premises for the interpretation of the music. Even though this is a mere soundtrack (without moving image), it arguably serves a narrative function. *Patrice Lumumba* is truly a modernist, dramaturgic and modal piece containing elements from hard bop, associated with protesting against injustice, and representing a call for freedom. Even consisting of only three instruments, the soundscape feels chaotic, and impulses from the Afro-Caribbean tradition are noticeable. Modal jazz is related to improvisation and musical freedom (see Stevenson 2016), and fits into a narrative of liberation from various forms of oppression (Monson 1998). These aspects can relate to concepts such as emancipation and empowerment, and at the core of the “jazz narrative” (or simply jazz history) lies the concept of freedom (Monson 1998; Stevenson 2016).

The piece *Patrice Lumumba* is interesting both in terms of its musical and political referential content. In 1960, the Democratic Republic of the Congo gained independence from Belgium. Lumumba was assassinated by his political opponents in the Congo in 1961. There was political unrest in many parts of Africa in the wake of liberation, and this turbulence created new dynamics in geopolitics. The sensation of stress, pain or suffering is probably prominent throughout this piece. For most Western listeners who are informed about the context, a probable perception is that Lumumba is a messenger of peace and was unfairly treated. In other words, we could feel empathy with Lumumba and African populations' efforts for liberation. The probable intention of evoking interethnic empathy is even more probable, given the fact that Alfred Janson described himself as a “soft socialist” and admitted to extensively apply political references in his music (Guldbrandsen 1994).

As a concept, jazz is commonly linked to a cosmopolitan declaration of freedom and generally a universal ideal of freedom (Feld 2012; Monson 1998; Stevenson 2016). The metaphor of freedom and liberation has been part of the essence of jazz since its origins and cannot be separated from its socio-political context. Not only are artistic autonomy, creativity and freedom essential, but also a form of cosmopolitan vision of freedom through jazz practice (Feld 2012; Saul 2001; Stevenson 2016) – referred to as a universal musical mind by the pianist Bill Evans (Bill Evans Archive, 1966). The term cosmopolitanism refers to a cosmopolitan attitude in which cultural diversity is not only tolerated but seen as a resource. Music itself can be conceptualized here as a cosmopolitan medium that provides space for cultural dialogue and hybridity (Stevenson, 2016), symbolizing (political) liberation and emancipation (Monson, 1998).

Prospects for Music-Induced Ethnocultural Empathy

Language and music are universal cultural-cognitive entities in human history (Huron, 2001; Miranda & Gaudreau, 2020). One of the reasons why music exists is probably that it contributes to social cohesion by promoting altruism and solidarity (Huron, 2001). Music is a source of transcendence for many people (for example, in religious contexts) and can help

⁶ *Portrait of a Norwegian Jazz Artist – Erik Amundsen (2006). Patrice Lumumba [Soundtrack]. (distributed Gemini Records, recorded 11.04.1966). Retrieved from <https://www.youtube.com/watch?v=dMAg69CusT4>*

build empathy and break down barriers. In this perspective, it makes sense to talk about the role of music in social and public (community) health. At a time when musicology, and the social and cultural study of music, has become far more aware of what can be seen as essentializing and romanticizing tendencies, it is still not uncommon to find claims about music as a “universal language” that can overcome (or even transcend) cultural differences (Miranda & Gaudreau, 2020).

Huron (2001) suggests that music, often unlike verbal interaction (or “speech acts”), can reduce the level of conflict between people. Music can thus signal security and serve an adaptive function. In evolutionary terms, music can contribute to team spirit, cooperation, and coordination. Accordingly, music might help promote solidarity and altruism between people belonging to a group. This could contribute to more efficiency in the social community that binds people with a common identity against a potential opponent or enemy (Clayton, 2016). An adequate degree of ethnocultural empathy is necessary for peaceful coexistence in multicultural societies. For example, people who have experienced war and insecurity can communicate their feelings through music. Current migration flows make cultural understanding a relatively central theme in public media discourses. When the multicultural complexity is emerging and we observe challenges to the prevailing institutional framework in society, Slobin (2003) argues that people are reaching for dynamic musical movements.

Music also conveys important cultural characteristics through its traditional symbols and collective identities (Elliott, 1990). As a universal medium, music can potentially mitigate conflicts and hostility between groups. Music possesses the potential for shaping emotions in ways language cannot, and an aesthetic understanding of different types of music can form the basis for communicating, negotiating, and sharing identities across cultures. However, effective cross-cultural communication is conditional on mutual respect, trust and curiosity between the cultures in question. Music has the potential to improve interpersonal interaction and can thus be considered a key resource in society. For instance, music anthropologist Steven Feld promotes the concept of “musical citizenship” to address themes such as social conscience, social responsibility, injustice and oppression (Ruud, 2016, p. 292). According to Ruud (2016), “Feld's appeal was to search for the musical expressions of marginalized groups in society,” (p. 292). Indeed, music can be good for both societal and subjective well-being.

“Musicalizing” Culture

Inspired by Klempe's (2016) interpretation of “the musicalization of language”, we can consider a process of musicalizing culture in the previously presented cases. Intercultural music engagement (Crooke et al., 2024) could operate both consciously and subconsciously, while ethnocultural empathy recognizes the heterogeneity of cultural customs on the planet. This is important as the merging of psychology and music is more commonplace than ever in the fact that new streaming platforms constitute one of the most important forms of musical consumption today.

Bill Evans' idea of a “universal musical mind” can be seen in the light of Chomsky's theory of universal grammar: All humans have an innate capacity for language. The key point from Evans is the importance of being *conditioned*. As aesthetics and artistic media, musical expressions conveyed through both jazz and film music can contribute to the experience of

meaning. Therefore, we can suggest an existence of a “universal aesthetic mind” that enables shared understanding through artistic expression.

Music, Empathy and Intercultural Tolerance

In a contemporary context characterized by globalization, migration, and digitalization, modern societies face challenges related to intercultural understanding and peaceful coexistence. Ethnocultural empathy, which involves the ability to understand, respect, and respond to emotions and experiences across cultural boundaries, represents an important capacity for humans to navigate in these complex environments. Music constitutes a unique medium for such processes, as it can function as a universal language for emotional communication. Empathy can function as a source of ethnocultural “bridge-building”, interaction and contact. Studying ethnocultural empathy appears increasingly important in ethnically heterogeneous societies to promote communication but also achieve greater degrees of cross-cultural congruence in therapy or research (Rasoal et al., 2011).

In film music, so-called empathetic sound is referred to when there is a strong correspondence between sound effects (including music) and moods in the film scene. Film music, marketing (advertising) and therapy are areas where music is used strategically to influence people to develop certain attitudes or promote certain types of behavior (see Juslin & Västfjäll, 2008). The film medium can be argued to be “ubiquitous”. Arguably almost “everyone” consumes it, and one might consider it one of the most important aesthetical export articles of Western civilization. Film music appeals to a wide audience through its connection to narratives and visual media. It has a special ability to generate emotional resonance, and acts as an aestheticization of empathy that is institutionalized in global media.

Film music enables the communication of cultural information and emotional expressions across language through common and potentially universal musical idioms. This genre of contemporary art music is available for broad groups in the public and is daily consumed through television, cinema and digital platforms (e.g. as mere individual listening practice music on Spotify). Film music also serves as a cosmopolitical commodity because people take part – consciously or not – in various cultures by consuming this musical form.

Limitations and Interpretative Extensions

Dynamic social impact theory claims that repeated exposure between ethnically diverse groups could limit hostilities. This theory claims that repeated experience with individuals from other cultures weakens the basis for polarization in the long run. This occurs through a gradual or dynamic process where traditional attitudes are softened (Latané, 1996). Therefore, it is conceivable that experience with the music of foreign cultures can provide better cross-cultural harmony in the long run, not least through mediation of empathetic responses from musical experiences. In this regard, the metaphor of “the global musical village” (inspired by the media theorist Marshall McLuhan) applies. Musical stimuli represent a potential for empathic affordances. As music supplements the dramaturgy in a film, it *affords* the opportunity to engage in a scenario. The two examples discussed show how both jazz and film music might serve as a medium for ethnocultural empathy. However, one obvious limitation is certainly that cultural exchange does not automatically imply intercultural empathy and connectedness. Cognitive aspects of attitudes and prejudices, and so on, are also of interest when it comes to the degree of failure or success in predicting

interethnic empathy. Whether we can realistically predict convergences or divergences between members of various cultures is another question not addressed in this article. In this regard, the author of this paper also represents a Western bias, accentuating the importance of recognizing the potential influence from the cultural background of the observing interpreter.

Conclusion

Music represents an important ethnocultural empathic affordance through its intersubjective function and universal nature. As various music expressions and styles constitute cultural products, communicating complex information and storytelling with music might enable the facilitation of empathy across cultures. The contemporary multimedia setting characterized by hybrid identities and glocalization enables the fusion of genres and musical traditions in a historically dominant Western context.

Merging cultural psychology and musicology gives new opportunities for the social sciences in the digital era. This article argues for the understanding of jazz and film music as empathic affordances. The internet and available platforms such as YouTube or Spotify provide a unique database for engaging with other cultures musically. The cosmopolitan associations in jazz and the universality of film music represent two different and powerful ways to build bridges between cultures through music.

Music emerges as a potentially powerful catalyst of ethnocultural empathy, for example through the cultural-historical references in jazz, as in the case of the piece *Patrice Lumumba*, or as in intercultural film music, where cultures blend in the case of *The Last Emperor*. Through its narrative functions, music can promote ethnocultural empathy in film and other multimedia. We might conclude that a degree of motivation and openness is necessary to achieve an ethnocultural empathic response. And as Bill Evans points out in the introductory quote, the quest for a real understanding of various types of music relies on both effort and exposure.

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Physical Activity and Not Digital Technology Use Predict Primitive Reflexes in First-Grade Pupils in Croatia

Marina Kotrla Topić¹, Ana-Marija Ćorić¹, Marija Heffer²

¹ Ivo Pilar Institute of Social Sciences

² Faculty of Medicine, Josip Juraj Strossmayer University of Osijek

Abstract

Primitive reflexes are automatic movement patterns that should be integrated in early childhood, and their persistence may be linked to motor and learning difficulties. As children's lifestyles increasingly involve reduced physical activity and greater digital technology (DT) use, it is important to examine potential associations. This study aims to investigate the retention of the three primitive reflexes, namely ATNR, STNR, and TLR, in children aged 6 to 8 years, and to test whether it can be predicted by the time children spend engaging in different types of physical activities and using digital technology. The research was conducted as part of the project DigiLitA – The effect of environment on child development. The participants were 221 children (117 girls) aged 6 to 8 years ($M = 7.06$, $SD = 0.33$, Median = 7), first-grade students, along with one of their parents. Children were tested individually for persistence of the three types of primitive reflexes. Their parents provided estimates of the time the child spends in different physical activities and activities using DT. Results show that at least one of the three primitive reflexes that were tested was present in 59.5% of children. The hierarchical regression model shows that gender (entered at the first step) and frequency of the child engaging in activities such as riding a bike, scooter, or skates (entered at the second step) are significant predictors of the persistence of primitive reflexes. Boys and children who engage less frequently in coordination-demanding physical activities are more likely to have retention of primitive reflexes at their age. The model explained 6.2% of the variance. Using DT to play games for fun did not prove to be a significant predictor of primitive reflexes. These findings suggest that engagement in coordination-demanding physical activities, rather than recreational use of digital technology, is modestly associated with persistence of primitive reflexes in early school-age children.

Keywords: primitive reflexes, digital technology use, environmental influence, physical activity

Introduction

Primitive reflexes are automatic, involuntary movements that are present at birth or appear during motor development (commonly during the first year of life) and typically disappear as the nervous system matures and children master specific motor skills. They

help infants interact with the world through stereotypical reactions to specific external stimuli (visual, auditory, proprioceptive) or demands (protective behaviour). Still, most of them are expected to fade as the child's brain develops more complex motor and cognitive functions (Zafeiriou, 2024). However, in some school-age children, these reflexes may persist beyond the usual age of integration (replacement by voluntary movements) at around 6–12 months (Capute & Accardo, 1992), and no later than 3.5 years in the case of the tonic labyrinthine reflex (TLR).

Primitive reflexes are foundational to early motor development. Still, if they persist into school age, they can hinder a child's ability to participate fully in physical activities and cause issues with coordination and balance (Gieysztor et al., 2018a; Gieysztor et al., 2022). Additionally, they can be linked to problems with fine motor skills (Alibakhshi et al., 2018; Richards et al., 2022), cognitive skills like focus and attention (Hickey & Feldhacker, 2022), as well as eye movements and visual perception (Bein-Wierzibinski, 2001, as cited in Goddard Blythe, 2012; Gonzales et al., 2013). Listed abilities are compromised in children with Attention Deficit Hyperactivity Disorder (Landgren et al., 1998; Wang et al., 2023) and can be manifested as a child's inability to focus, sit still, and engage in tasks that require fine motor skills, which are often needed in a school environment. These might further lead to learning difficulties due to inefficient mastering of even more complex tasks such as reading, writing, and organizing thoughts.

While several primitive reflexes are examined in middle childhood, the ones that receive the most attention include the asymmetrical tonic neck reflex (ATNR), the symmetrical tonic neck reflex (STNR), and the tonic labyrinthine reflex (TLR). ATNR is present at birth. In addition to assisting in the expulsion of the baby through the birth canal, it is necessary for the development of crossed pattern movements (Goddard Blythe, 2005). ATNR is inhibited by higher cortical centres by around six months of age, and if it persists after this age, it may disrupt motor development, including crawling, crossing the midline, and later hand-eye coordination required for writing. In school-aged children, an active ATNR, particularly when combined with immature head-righting reflexes, can also interfere with the oculomotor control necessary for reading (Goddard Blythe, 2009). STNR typically appears between 5 and 8 months as infants begin moving into a hands-and-knees position and start creeping. This reflex supports the transition from crawling to creeping, but if it persists, it can interfere with coordinating the upper and lower body. Children may then skip creeping, adopt unusual movement patterns, or rely on bottom shuffling. Since creeping fosters balance, coordination, and integration of sensory systems, and supports later skills like posture, eye-hand coordination, and visual tracking, an unintegrated STNR may contribute to challenges in movement and school-related tasks (Gieysztor et al., 2018a; Visser & Franzen, 2010). TLR appears in full-term newborns in two positions: (a) bending the head forward (flexion) increases the tone of other flexors; (b) head bent backwards (extension) increases the tone of other extensors. This is a reflex that controls the position of the head in relation to the body, primarily before the child can sustain an upright position. If the TLR remains active into school age, it may interfere with upright balance, postural stability, and the eye movement control required for reading and writing (Goddard Blythe, 2021).

Various reasons contribute to the retention of primitive reflexes beyond the age of their integration, and among them are serious reasons such as the occurrence of some neurological diseases, trauma, chronic infections, experienced stress, and exposure to

toxins. Less dramatic and more frequent reasons are delayed or skipped development of creeping and crawling and a general lack of physical activity. The environment in which a preschool-aged child grows up plays a significant role in their motor development and the integration of primitive reflexes. Physical activity is affected by the persistence of primitive reflexes, which make movement less efficient and more difficult, and might lead to children avoiding physical activity (Gieysztor et al., 2018a; Pecuch et al., 2021). At the same time, physical activity can also be a tool to help integrate those reflexes. Movement-based interventions, especially those that target balance, bilateral coordination, and rhythmic motion, are considered beneficial for reflex integration and overall neurodevelopment (Goddard Blythe et al., 2021; Hirose et al., 2025). Providing real-life opportunities for physical movement from an early age allows children to make the transition from the uncoordinated activity present at birth to coordinated voluntary motor behaviour and helps ensure that reflexes integrate at the appropriate age (Goddard Blythe et al., 2021). On the other hand, a lack of physical activity, often related to prolonged use of digital technology, can hinder development and contribute to the persistence of primitive reflexes.

Chong et al. (2024) found that of the 7017 children aged from 3 to 4 years from 33 countries, only 14.3% met the overall guidelines for physical activity and screen time. The overall guidelines for physical activity were introduced by the World Health Organization (WHO, 2020) and recommend participating in at least 180 minutes of physical activity (at least 60 of which should be of moderate to vigorous intensity). The same source recommends spending no more than 1 hour in sedentary screen time. In a similar study with 4,524 US children aged 8–11 years, Walsh et al. (2018) found that only 18% of children met the physical activity recommendation, while 37% met the screen time recommendation. Korcz et al. (2023) showed that among 8–9-year-olds, 22% met the screen time guidelines, but only 8% met physical activity guidelines. The results of these studies indicate that children generally spend more time than recommended using digital technology and engaging in sedentary behaviour, while simultaneously spending less time than recommended in physical activity. This aligns with the theory of Time Displacement (Putnam, 2000), which suggests that the time spent with digital technology affects the time allocated to other daily activities, and it reduces the time for face-to-face interactions or activities outside the home, such as physical activities. In the literature, studies on the displacement hypothesis in middle childhood provide conflicting findings, with some studies showing evidence of a negative association between screen time and activities such as spending time outside (LeBlanc et al., 2015), while others point out that while total time spent engaged with digital technology increased by 23% since 1997 for children in middle childhood, the co-occurring decline in physical activity cannot be attributed solely to technology time (Goode, 2020).

While there is reason to expect a negative association between physical exercise and retention of primitive reflexes, to the best of our knowledge, no studies have shown the direct link for children in middle childhood. Additionally, no studies have looked into the relationship between physical activity and digital technology use in relation to the retention of primitive reflexes in middle childhood.

This study aims to investigate the retention of the three primitive reflexes, namely ATNR, STNR, and TLR, in children aged 6 to 8 years, and to test whether the retention of primitive

reflexes can be predicted based on the time children spend engaging in different types of physical activities and using digital technology.

Methods

Sample

The participants were 221 children (117 girls) aged 6 to 8 years ($M = 7.06$, $SD = 0.33$), first-grade students, along with one of their parents. Children were tested individually for the persistence of the three types of primitive reflexes. Their parents provided estimates of the time the child spends in different physical activities and using DT.

Procedure

The data used in this paper were collected in Croatia during the first wave of a longitudinal study conducted within the framework of a larger research project DigiLitA – The effect of environment on child development: The association of digital technology use, home literacy environment and physical activity with the well-being of children in early school years, funded by the European Union programme NextGeneration EU (project number 01/02-73/23-2519-5).

Ethical approval was obtained from the Ethics Committee of the Ivo Pilar Institute of Social Sciences, along with permission to conduct the study in elementary schools from the Ministry of Science, Education, and Youth. Ten elementary schools in Osijek and the surrounding area were invited to participate, and eight agreed to join the study. Schools were selected based on having larger student populations and at least one staff member with an M.A. in psychology, as only these schools administer specific school readiness assessments.

Following approval from each school principal, the study was introduced to parents of first-grade students during the initial parent–teacher meeting. Parents in attendance received an envelope containing a short project description, a written consent form, and questionnaires. They were also given an additional envelope, with instructions to complete the questionnaire, sign the consent form if they agreed to participate, and return both – the consent form separate from the questionnaire, which was sealed in the envelope.

Children whose parents provided consent were individually assessed during regular school hours. The retention of primitive reflexes was assessed by trained members of the research team, all psychologists, who completed a short training in the identification of primitive reflexes based on videos and manuals provided by international colleagues. These materials are not publicly available but are authorized for internal professional use. Each session lasted approximately 30 minutes and was conducted in the morning. In total, 358 children and their parents were approached, of whom 221 consented to participate (61%). To acknowledge their contribution, each participating child and parent received a gift certificate for a visit to the local zoo.

Measures

Primitive Reflexes

Children were tested for the presence of three different primitive reflexes using the INPP Developmental Screening Test and School Intervention Programme (Goddard Blythe, 2012). The ATNR was assessed using the quadrupod Ayers test for the ATNR; the STNR was assessed using the quadrupod test for the STNR; and the TLR was assessed using the erect test for the TLR (Goddard Blythe, 2012). Children were tested individually in a relaxed setting, and the testing procedure was presented as a short and fun exercise. The researcher would show the children how to take a specific position and then encourage the children to take the same position. There were two positions – one on a soft mat, where children would be down in a ‘table’ position, on their knees and hands, and one in an erect position, with the arms relaxed down on the side of the body. At each position, the child was asked to move their head slowly and gently up, looking at the ceiling, or down, looking at their toes, or on the left or right side, without moving other parts of the body. At each position and with each movement, the researcher would monitor changes in balance or muscle tone and rate the child from 0 (no abnormality detected) to 4 (reflex retained, i.e., present to 100%). The reflex reactions were always observed in other body areas. For each test, there were two conditions (either left-right head rotation or head flexion and extension), so each test was given two scores. The three scores for each of the two conditions for the three primitive reflexes tests were combined into one, with a greater result showing a greater degree of retention of primitive reflexes. The entire testing procedure lasted up to 5 minutes. The researchers who assessed the degree of retention of primitive reflexes received a short training in the assessment process through video and print materials and a short practical training with volunteers recruited from personal contacts.

The Time a Child Spends Engaging in Different Physical Activities

Parents were asked to estimate how often during a typical week their child plays with other children outside (on the street, a playground, or a sports field), goes for a walk, or rides a bicycle, scooter, or skates. The answers were given on a scale from 0 (“Never”) to 7 (7 times a week).

The Time a Child Spends Using DT

Parents were asked to estimate how often their child uses all digital technology devices for fun, using a 5-point scale, from 1 (“Never”) to 5 (“Very often”).

Results

In Table 1, descriptive statistics for the study variables are presented. According to parental reports, children engage in different physical activities such as playing outside, walking, or riding a bicycle/scooter/skates approximately four times per week. Furthermore, most parents reported that their children sometimes play digital games for fun. The presence of primitive reflexes was also analysed, and a mean score of 1.79 and a median value of 1 (range 0–7; MAD = 1), suggest a minimal presence of primitive reflexes in first-grade children. In fact, 40.5% of children had no retention of primitive reflexes.

As for individual reflexes that were examined, no child was assessed to have fully retained any of the reflexes. The maximal value given for a specific reflex was 3, which is described as “Reflex present to 75% (virtually retained)”, and this value was assessed only for two reflexes, both for the same child. Depending on the primitive reflex, the percentage of children who had any level of retention at this age ranged from 19.2% for the STNR, for the flexion position (when the child looks down), to 31.2% for the TLR, for the extension position (when the child looks upwards).

Table 1.

Descriptive Statistics for the Study Variables

	N	M	SD	Min-max	Skew	Kurtosis
Physical activity-playing	218	4.30	1.93	0-7	-0.12	-1.01
Physical activity-walking	217	3.82	2.01	0-7	0.09	-1.02
Physical activity-bike/scooter/skates	216	3.93	1.97	0-7	0.05	-0.93
DT-games for fun	219	3.09	0.97	1-5	-0.22	-0.22
Primitive reflexes	215	1.79	2.04	0-11	1.16	1.17
Age	221	7.06	0.33	6.33-8	0.31	-0.39

The correlation analysis (Table 2) revealed several significant relationships among the key variables included in the regression model. The presence of primitive reflexes was negatively correlated with the frequency of riding a bicycle, scooter, or skates during the week ($r = -.223, p < .01$), which means that children who engaged more frequently in these physical activities showed a lower presence of primitive reflexes compared to those who engaged less. A significant negative correlation was also found between the presence of primitive reflexes and walking ($r = -.161, p < .05$). Regarding gender differences, girls showed a lower presence of primitive reflexes compared to boys ($r = -.177, p < .01$). There was a significant positive correlation between all three measures of physical activity. Additionally, playing digital games for fun was negatively correlated with both playing outside ($r = -.146, p < .05$) and walking ($r = -.148, p < .05$).

Table 2.

Correlations for the Study Variables

Physical activity - playing outside	Physical activity - walking	Physical activity - bike/scooter/skates	DT-playing games for fun	Retention of primitive reflexes	Age	Gender
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Physical activity – playing outside	1	.538**	.534**	-.146*	-.055	.024	-.008
Physical activity – walking		1	.508***	-.148*	-.161*	.163*	.134*
Physical activity – bike/scooter/skates			1	.011	-.223**	.011	-.007
DT – playing games for fun				1	.003	-.048	-.181**
Retention of primitive reflexes					1	-.011	-.177**
Age						1	-.146*
Gender [∞]							1

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, [∞] Gender was coded as 0 for boys and 1 for girls.

A two-step hierarchical multiple regression was conducted to explore the impact of different physical activities and playing digital games for fun on the presence of primitive reflexes in first-grade children. The regression coefficients are presented in Table 3. In Step 1, only age and gender were included as predictor variables. Results showed that age and gender alone did not significantly contribute to explaining the presence of primitive reflexes, $F(2, 206) = 2.979$, $p = .053$. In Step 2, physical activity variables (playing, walking, and riding a bicycle, scooter, or skates) and playing digital games for fun were added. The model significantly predicted the presence of primitive reflexes, $F(6, 202) = 3.292$, $p < .01$, and explained 6.2% of the variance. Furthermore, the results indicated that the only significant predictors were the extent to which children engaged in activities such as riding a bicycle, scooter, or skates ($\beta = -.271$, $p = .001$) and gender ($\beta = -.152$, $p < .05$). Overall, the findings suggest that engaging in physical activities requiring motor coordination, such as riding a bicycle, scooter, or skates, and gender differences may play a meaningful role in explaining the presence of primitive reflexes. However, these variables explained only a small portion of the variance, which implies that further research is needed to identify additional contributing factors.

Table 3.

Results of the Hierarchical Regression Analysis Predicting Primitive Reflex Persistence from Physical Activity and Recreational Digital Game Use

95% CI

Predictor	B	β	t	p	Low	Up	Adj. R ²	Δ Adj. R ²	P
Step 1							.019	.019	.053
Age	-.324	-.055	-.796	.427	1.128	.479			
Gender	-.644	-.165	2.389	.018	1.176	-0.113			
Step 2							.062	.043	.004
Age	-.250	-.042	-.612	.541	1.055	.555			
<i>Gender</i> [∞]	-.594	-.152	-2.158	.032	1.136	-.051			
PA – playing	.139	.138	1.585	.114	-.034	.312			
PA – walking	-.043	-.045	-.515	.607	-.209	.122			
<i>PA – bike, skates</i>	-.271	-.274	-3.263	.001	-.434	-.107			
DT – games for fun	.039	.020	.282	.778	-.235	.313			

Note. Adj. R² = Adjusted R², CI = Confidence Interval, [∞] Gender was coded as 0 for boys and 1 for girls.

Discussion

This study examined the retention of three primitive reflexes, namely the asymmetrical tonic neck reflex (ATNR), the symmetrical tonic neck reflex (STNR), and the tonic labyrinthine reflex (TLR) in children aged 6–8 years, and explored whether the persistence of these reflexes is associated with levels of different types of physical activity and digital technology use. While previous research has linked retained primitive reflexes to challenges in motor coordination, balance, and learning (Gieysztor et al., 2018a; Richards et al., 2022), little was known about how everyday activity patterns might contribute to their persistence.

The results showed that at least one of the primitive reflexes that were tested was present in around 60% of children aged 6 to 8, which means that around 40% of children have no retention of primitive reflexes at the start of primary school. Findings from previous studies are difficult to compare because they depend on the reflexes that the children are tested for and the exact age of the children in the study. Most studies included children who are slightly younger than children in our sample, because children in Croatia start

school somewhat later than in other European countries. For example, Pecuch et al. (2021) tested 112 Polish children aged 4 to 6 and found that 7.1% of them had no retention of primitive reflexes, which is a far lower percentage than the one found in our study. However, similar to our study, Pecuch et al. (2021) found that one of the most frequently occurring reflexes was the TLR in extension position, while the least frequent one was the STNR, for the flexion position, which is in accordance with our findings. Gieysztor et al. (2018a) showed that 11% of 35 preschool children aged 4 to 6 have no retained primitive reflexes, with the STNR, for the flexion position again being the one that was least frequently occurring. Finally, Goddard Blythe et al. (2021) showed that around 85% of 120 British preschool children aged 4 to 5 had a retained ATNR or STNR of 50% or more. In conclusion, previous studies point to a larger percentage of children showing signs of primitive reflex retention, but they include younger participants and often smaller samples. A plausible explanation might be that children continue to integrate primitive reflexes with age and that in older children, the percentage of retention is lower, both in terms of prevalence and severity. However, there is no critical age at which primitive reflexes are generally integrated, since studies showed the existence of the ATNR and STNR in adult subjects as well (Bruijn et al., 2013). The pattern of the lowest and highest rates of individual primitive reflex retention is similar in previous studies to the results from our study, which might imply a similar pattern of specific reflexes retention.

The results from the regression analysis showed that age and gender alone did not significantly explain reflex retention. However, when physical activity and digital technology use were added to the model, the model became significant, although the explained variance was modest (6.2%). Among the predictors, only participation in activities such as riding a bicycle or a scooter and/or skating and gender significantly contributed to the presence of reflexes. Specifically, children who engaged more frequently in these coordination-demanding activities and girls showed fewer retained reflexes. This finding aligns with the notion that physical activities requiring balance, bilateral coordination, and rhythmic movement support reflex integration (Goddard Blythe et al., 2021; Hirose et al., 2025). This also implies that it is not just physical activity, but a specific type of physical activity that might be important for primitive reflexes and their integration. This is also evident in the finding that, while according to parental reports, children engage in different physical activities, on average, 3 to 4 times a week, children spend significantly more time playing outside than riding a bicycle, scooter, or skates, or going for a walk. So, it is not the most frequent physical activity that is related to primitive reflex retention, but rather one that places specific demands on balance and coordination. The significant gender effect also indicates possible biological or behavioral differences, echoing findings from other developmental studies where boys and girls demonstrated different movement patterns or susceptibilities in motor development (LeBlanc et al., 2015). Results from this study show that, once other variables about different activities children engage in are introduced in the model, female gender is associated with less retention of primitive reflexes. In a previously mentioned study with children from 4 to 6 years, Hickey & Feldhacker (2022) also found that boys demonstrated more reflex retention than girls for 6 of the 7 tested reflexes. Interestingly, digital technology use for fun was not a significant predictor of primitive reflex retention. This may suggest that while sedentary screen-based behaviors are often associated with reduced physical activity levels (Chong et al., 2024; Walsh et al., 2018), their direct impact

on reflex retention may be indirect or mediated through reduced opportunities for active play. Despite the significant associations, the explained variance of primitive reflex retention was relatively small, suggesting that reflex persistence is likely influenced by a wider range of factors, including neurodevelopmental, environmental, and possibly genetic contributors not captured in this study. This highlights the need for longitudinal research to better understand causal pathways and to explore whether specific interventions, such as structured movement programs, can accelerate reflex integration. Such programs, implemented before school starts, could significantly impact school success.

This study is not without limitations. The community sample and a cross-sectional design prevent us from making more generalized and causal conclusions. Also, in the current study, no information was provided about the existence of any developmental delays or specific difficulties (neurological disease, trauma, stress) that some of the children in the sample might be facing, and previous studies underline an association between, e.g., ADHD and primitive reflex retention (Wang et al., 2023). Finally, relying on the parental estimates of the time children spend in different activities also introduces a significant risk of recall bias and social desirability bias, which may compromise the accuracy of the reported physical activity and digital technology use (Koning et al., 2018).

Conclusion and Practical Implications

In conclusion, this study provides preliminary evidence that gender and engagement in activities requiring coordination, such as riding a bicycle, scooter, or skates, are associated with the integration of primitive reflexes in first-grade children. Although the effect size was modest, these findings underscore the importance of physical activity in middle childhood and point to the need for further research to identify additional determinants of reflex integration. Persistent reflexes have been associated with motor difficulties (Gieysztor et al., 2022), postural issues such as scoliosis (Gieysztor et al., 2018b), and reading difficulties (Hazzaa et al., 2021; McPhillips et al., 2000), yet in Croatia, as in many other European countries, they are not included in standard developmental assessments. The testing of the three relevant primitive reflexes before starting school is a simple and short procedure, and incorporating reflex evaluation into regular medical examination protocols could complement existing screening methods and help clarify their role as early indicators of neurodevelopmental risk. Furthermore, evidence suggesting that movement-based reflex integration activities can improve academic outcomes underscores the need for a systematic study of the prevalence of primitive reflex retention in school-age children and how physical activity contributes to reflex inhibition (Grigg et al., 2018). Expanding research in this area has the potential to bridge gaps between clinical practice, education, and developmental science, ultimately supporting more effective interventions and healthier developmental trajectories.

The findings have practical implications for educators and parents. Encouraging children to participate in coordination-rich activities like cycling and skating may not only support motor development but also reduce the likelihood of retained primitive reflexes that can interfere with balance, posture, and school-related tasks such as reading and writing (Gonzales et al., 2013). As current evidence suggests many children fail to meet the WHO (2020) guidelines for physical activity, promoting these kinds of engaging, skill-based movements could be particularly beneficial.

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