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Media Transitions in Later Life: A Seven-Year Longitudinal Study of Digital Pioneers in Romania

Abstract

This study analyzes media transitions and media displacements in later life, examining the role of social disruptions, specifically the COVID-19 pandemic, and two key life transitions: retirement and widowhood. It focuses on early internet adopters, pioneers in their country at the outset of the study. Using a longitudinal design, a sample of 252 Romanian internet users aged 60+ provided data across four waves (2016, 2018, 2020, and 2023). Findings reveal distinct media transitions: traditional media use remained stable, while digital media consumption increased, particularly in digital interpersonal communication. Additionally, displacement occurred between traditional and digital mass media, but not in digital interpersonal communication media. Results suggest that the COVID-19 pandemic played a role in shaping these dynamics, whereas retirement and widowhood did not. These findings offer new insights into how later-life media transitions might be influenced by societal events and personal life changes.

Keywords: media transitions, older adults & media transitions, life transitions & media transitions, media displacement, digital interpersonal communication & media displacement

1 Introduction

The emergence of new media has raised questions about how individuals transition from traditional to (new) digital media. Notably, for older adults accustomed to traditional media, which dominated their formative years (Sackmann & Winkler, 2013), the question of transition becomes relevant (Loos & Ivan, 2024). Such a perspective has been examined in the literature through the concept of media displacement (Nimrod, 2017, 2019), and some studies have provided empirical evidence of the direct replacement of some traditional media by new digital media (see, for example, Rosenberg & Nimrod, 2022). Other studies have pointed out that media saturation also occurs in transitioning from traditional to digital media, a process

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by which a feeling of exhaustion accompanies the increase in use of digital media and, eventually, a decrease in use or reluctance (Ivan et al., 2020; Taipale et al., 2021, 2024). The current study aims to deepen understanding of the process of media transitions in later life by considering both media replacement and saturation as theoretical frameworks.

Also, as many authors have suggested (Loos & Ivan, 2024; Riley & Riley, 1994; Taipale et al., 2024), longitudinal data are required to capture the nature of media transitions, and such studies in older populations are scarce. The current study is rather unique, as we follow older people's media practices in a four-wave longitudinal study (from 2016 to 2023). During this period, the COVID-19 pandemic occurred, opening a window into how major social disruptions could affect the media transition process for the older population.

On the one hand, as people age, it might become increasingly difficult to keep up with rapid changes in the media landscape and the proliferation of new communication technologies and media formats (Nimrod, 2017; Taipale et al., 2021). On the other hand, individuals have a finite amount of time to allocate to media consumption. As the digital spectrum expands seemingly without limit, shifts respond to the constraints of such limited time – whether toward increased or decreased engagement with specific media (Nimrod, 2019).

Media transitions occur in the life of any individual, and social disruptions, for example, the recent COVID-19 pandemic, might accelerate such transitions and make them more visible (Chao & Yu, 2024; Chen, 2021). For older people, in particular, some key life transitions, such as retirement and widowhood, might be accompanied by changes in media use as well, as media are part of a changed everyday scenario. We can expect individuals to change their media practices once they retire from work or feel a greater need for social contact, but there is little evidence on how such changes might occur (Mao et al., 2017).

The current study investigates a unique sample of older internet users to understand their changes in media practices over 7 years, from 2016 to 2023. We had access to a sample of older adult internet users living in Romania. Recruited in 2016, the sample was composed of „pioneers” – a minority in their age group in the country at that time, as only approximately 20% of Romanians aged 60 and over were internet users when the study began (INS, 2016). The research team collected information every 2 years, constituting a 4-wave longitudinal study that allows for analyzing changes in participants' media practices and the particular role of key life transitions in such dynamics.

Based on the integration of media displacement and saturation theories and the life course perspective, our study is guided by a theoretical model that assumes media practices are shaped by the interplay of macro-social disruptions and micro-personal transitions. Drawing from the reviewed literature, we estimate the following associations: (1) the COVID-19 pandemic will act as a catalyst, significantly increasing the use of digital media, particularly for interpersonal communication; (2) following media displacement theory, an increase in digital mass media will be negatively associated with traditional media usage; (3) major life transitions, such as retirement and widowhood, will prompt significant shifts in media consumption as individuals reorganize their daily routines and social needs. Consequently, we formulate the following research questions:

RQ1. How did older adults change their media practices between 2016 and 2023?

RQ2. Are there displacement effects between traditional and digital media in the analyzed period?

RQ3. Do key life transitions in later life – particularly retirement and widowhood – shape the evolution in media usage?

2 Literature review

2.1 Media Transitions and Social Disruptions

When studying media transitions from the older to the newer digital media among older adults, at least two aspects should be considered. First, older adults tend to be late adopters of new digital media (Charness & Boot, 2009; Magsamen-Conrad & Dillon, 2020), a pattern confirmed regardless of the country and the history of media penetration (Riley & Riley, 1994; Loos & Ivan, 2024). Second, as many studies suggested, older adults started using specific media formats or gave up on others based on a utilitarian view of digital technologies: once a media format offers marginal utility compared to others, this may cause a transition and a possible replacement (Fernández-Ardèvol & Ivan, 2013; Ivan & Fernández-Ardèvol, 2017). The hedonistic approach to new technologies – embracing a particular media format to have a sense of „belonging“ and social validation – was not common among older adults in the past (Conci et al., 2009). However, recent evidence demonstrates the relevance of social aspects for digital adoption (e.g., Miller et al., 2021, for the smartphone case).

The existing literature identifies two key concepts in media transitions: media saturation and media displacement (Newell et al., 2008). Media saturation refers to the accumulation of media formats, in which new media coexist with and complement traditional media. In contrast, media displacement refers to the process in which one medium is replaced by another (Newell et al., 2008, p. 131). According to the media saturation perspective, new media increasingly permeate individuals' private lives (McRobbie, 1986) and continue to expand until reaching a threshold where their presence becomes overwhelming. Moreover, Loos and Ivan (2024) discuss how certain “new” media eventually become „old“ through the process of saturation. Drawing on McCombs' (1972) seminal work, the two authors provide evidence of new media that have aged and become outdated – such as email – and have been substituted even among later adopters, as older individuals.

The term „saturation,“ borrowed from chemistry, refers not only to the limited time individuals can devote to everyday activities, including media consumption, but also to the increased availability of different media types with similar functions that compete with each other (Newell et al., 2008; Wartella et al., 2016). Media exposure not only reaches a „saturation point,“ beyond which it becomes exhausting and „impossible to be further absorbed,“ but this saturation arises as a direct consequence of media pervasiveness and an increasingly competitive media landscape (Loos & Ivan, 2024, p. 3675). The growing diversity of media formats can ultimately overwhelm individuals, reinforcing their attachment to comparatively more familiar platforms. For example, Newell et al. (2008) describe media saturation as a process like that in the natural sciences, in which overexposure to certain media does not lead to increased use of that medium.

Media displacement theory is a more common way to look at media transitions (De Waal & Schoenbach, 2010; Lee & Leung, 2008; Nimrod, 2019), suggesting that new media formats will replace traditional ones. Some authors mention a total displacement (Kim et al., 2020), whereas others talk about partial displacement – a replacement in the functionalities of certain media formats (Tokunaga, 2016). Furthermore, authors emphasize a symmetrical or functional displacement. Symmetrical displacement delineates situations in which the time devoted to a certain media format is substituted for a competitive different media, and helps explain the substitution of traditional media (TV sets, radio, or newspapers) with new digi-

tal media (usually internet-based, such as Social Network Sites, YouTube, podcasts). Functional displacement refers to the substitution of one media format with another that fulfills the same individual needs – for example, replacing a traditional TV set with television content streamed on a computer or smartphone.

Displacement theory (both functional and symmetrical) is based on the premise that individuals have a fixed allocation of resources, such as time and money, for media consumption. Whereas media formats continue to diversify, these resources remain relatively stable, limiting individuals' capacity to expand their media engagement. Consequently, displacement becomes a necessary mechanism for maintaining balance and controlling media influence in people's lives (Newell et al., 2008).

Overall, some studies support media displacement theories (Hall & Liu, 2022; Nossek & Adoni, 2001), while others provide more evidence for media saturation (Sherry, 2002; Loos & Ivan, 2024). The concepts of media saturation and media displacement are related and help explain different ways people manage their media exposure in everyday life (Newell et al., 2008). For instance, individuals may increase their time spent on certain media while decreasing their engagement with other concurrent media, or they might reduce their time on certain media due to overexposure. Authors who find a decrease in time devoted to traditional media accompanied by an increase in time spent on new digital media often recall media displacement as the supporting theory (De Waal & Schoenbach, 2010; Nimrod, 2016; Nimrod et al., 2015). Conversely, when no significant increase in the use of a new medium is observed, authors suggest media saturation as the potential explanation (Loos & Ivan, 2024; Taipale et al., 2024). In the case of older adults and media use, longitudinal studies are scarce, but show evidence of displacement (Nimrod, 2017, 2019) and saturation (Loos & Ivan, 2024).

Moreover, both media displacement and media saturation theories lack nuances regarding what might happen in atypical social contexts. Social disruption, in particular, can alter the ways individuals transition from one medium to another. Rooted in the sociology of disasters, the concept of „social disruption“ refers to a significant societal breakdown with broad implications for the overall social system (Schrijvers et al., 2021). It encompasses extraordinary events that affect entire populations and cause substantial harm (Kreps, 1985). From this perspective, the recent COVID-19 pandemic can be considered a major social disruption. In fact, studies on media practices have already framed COVID-19 as a catalyst for shifts in media consumption, compelling individuals to adapt their habits to new circumstances (Chao & Yu, 2024; Lebrasseur et al., 2021). Additionally, the pandemic heightened the risks of loneliness and social isolation (Marston et al., 2023), particularly among groups with limited digital access, such as low-income populations, older adults, and certain social minorities, including the Roma population (see Capraru et al., 2024; Valero et al., 2024). Moreover, while the impact of digital media on social isolation in later life has been discussed (e.g., Lelkes, 2013), existing analyses often fail to compare different digital technologies. This constitutes a knowledge gap, as treating digital media as a monolithic category may obscure how specific media uniquely influence social integration.

In the case of older individuals, COVID-19 was deemed a life-threatening situation, creating the need for numerous restrictions for physical encounters in many countries (Chen, 2021). Such a dramatic change in daily routine was accompanied by changes in media use, urging people to embrace internet-based technologies (Elimelech et al., 2022; Sixsmith et al., 2022) to fulfill different communication goals. On those lines, some studies conducted with older adults capturing the situation during and after the COVID-19 pandemic showed in-

creased digital media use, whereas others failed to provide evidence of long-term change (see Vargo et al., 2021, for a review). Individuals continued to use some of the internet-based technologies adopted during the COVID-19 pandemic but not others (Heponiemi et al., 2024; Kung & Steptoe, 2023). To our knowledge, few studies have examined which types of digital media older adults have adopted more frequently in the post-COVID-19 period compared to before the disruption (e.g., Kung & Steptoe, 2023, in the UK). In some cross-sectional studies, there is evidence that social media platforms and, more generally, interpersonal digital communication were the services older adults primarily embraced during the pandemic (see, for example, Vlachantoni et al., 2023) and have the potential to remain at higher levels of use.

2.2 Life Transitions and Media Transitions in Later Life

Life transitions, such as retirement or the loss of a spouse or partner, are often accompanied by shifts in media consumption that are deemed to facilitate adaptation to new social contexts, helping individuals navigate evolving identities (e.g., becoming a retiree), maintain social connections, or seek support and resources (Haimson et al., 2019). These transitions function as biographical disruptions or “turning points” (Elder et al., 2004), occurring throughout the life course with varying degrees of unpredictability. Unlike predefined developmental milestones, life transitions are shaped by individual circumstances and socio-spatial mobility, adding complexity to their impact on media engagement (Hörschelmann, 2011).

Scholars acknowledge that life transitions shape various aspects of people’s lives (e.g., Merriam, 2005), including routines and habits (Bridges, 2009), work priorities (Blair, 2000), and media practices (Burke & Kraut, 2013; Liu et al., 2020; Semaan et al., 2016). However, research on media use related to life transitions has predominantly focused on its instrumental role to provide support, as, for example, the role of social media in the provision of social capital when individuals face job loss (see Burke & Kraut, 2013). These studies tend to overlook everyday practices and do not adopt longitudinal approaches. Certainly, a dynamic perspective is an implied principle in the study of life transitions (George, 1993). Furthermore, existing research primarily examines young and middle adulthood (ages 18–45), leaving later-life transitions comparatively underexplored (an exception being Kuoppamäki, 2019). When older adults’ transitions are studied, media use is typically framed as a coping mechanism for identity reconstruction, rather than a dynamic and evolving practice (Mao et al., 2017; Salovaara et al., 2010). To our understanding, the assumption that media habits remain stable unless explicitly disrupted overlooks the gradual and cumulative ways in which media engagement changes over time.

Later-life transitions tend to be deemed predictable and nearly universal (Vrkljan et al., 2019), whether planned or unforeseen. However, “successful aging” (Rowe & Kahn, 1998) dominant models emphasize stability over change and convey limited transitions. For instance, successful aging means avoiding illnesses by “aging well,” remaining active on the labor market, being socially active, and aging “in place” (that is, in one’s home place and community instead of moving somewhere else). These perspectives, criticized for their homogenizing view of aging (Rubinstein & de Medeiros, 2015), risk minimizing the significance of key transitions that shape older adults’ lives, such as widowhood, retirement, and major health events that would reorganize the individual’s life (Settersten & Thogmartin, 2018).

With this in mind, we can study media changes accompanying life transitions to deepen our understanding of the media's role in older people's lives.

3. The Case Study

The data come from a longitudinal study conducted in Romania over 7 years using a phone-based survey addressed to individuals aged 60 and over. We deployed four waves of data collection between 2016 and 2023: 2016 (or Wave 1), 2018 (Wave 2), 2020 (Wave 3), and 2023 (Wave 4). The first three are part of the Cross-national longitudinal study: Older audiences in the digital media environment, conducted in 7 countries, namely Austria, Canada, Finland, Israel, the Netherlands, Romania and Spain (part of the ACT project, ref.:895-2013-1018 SSHRC Canada), while the last wave constituted a specific extension of the study for Romania (part of the Aging in Data project, ref. 895-2021-1020 SSHRC Canada). All the involved institutions provided ethical clearance. Data collection adhered to a standardized methodology to allow for international comparison. However, while the general design relied on online surveys addressed to local consumer panels, the Romanian case study employed phone-based interviews due to the low internet penetration among older adults in 2016 (20%, INS, 2016).

Methodologically, Romanian participants in this case study can be considered „pioneering“ older internet users, given the country's relatively late adoption of the internet. Particularly, in 2016, internet penetration among individuals aged 60 and over was less than half the EU average in 2016 (20% in Romania vs. 47% in the EU, INS, 2016, Eurostat, 2024). The design facilitated the inclusion of individuals who would be otherwise underrepresented, as phone interactions eliminated the need for the more advanced digital skills required to participate in online research panels. Notably, Romanian participants exhibited less sophisticated digital practices compared to their counterparts in the other countries (Loos et al., 2018). As a result, this study offers a more comprehensive perspective on digital engagement and its evolution in later life within Romania. Moreover, by analyzing participants over seven years – including the COVID-19 pandemic, which significantly accelerated digitization – this research captures critical shifts in digital adoption as, by 2023, internet use among older adults in Romania had risen to 70%, nearly matching the EU average of 74% (Eurostat, 2024).

To our knowledge, the dataset is unique in collecting information on digital and traditional media use by older adults over such a long period during which digital leapfrogging in later life was particularly significant. Therefore, this case study allows a more general discussion on how digital media has replaced or co-existed with traditional media, following periods of personal transitions and social disruptions.

3.1 Data and Methods

Our study relies on unique data from a longitudinal study conducted with a sample of Romanian older internet users over 7 years (2016-2023), shaped by the social disruption caused by the COVID-19 pandemic. As already noted, participants were internet “pioneers” in their context at the time the study was launched. Considering these characteristics, we investigate media transitions, focusing on differences between traditional mass media (TV, radio, news outlets), digital mass media (TV, radio, news outlets), and digital interpersonal media (SNS

or Social Network Sites, and chat-based applications). The initial sample ($n = 800$) was designed to be representative of the older online population in Romania (Loos et al., 2018). At the end of the period, the sample of individuals participating in the four waves comprised $N = 252$. The design did not incorporate participant replacement, resulting in an attrition rate of 69%, which is considered acceptable given the study’s duration (Cabrera-Álvarez & Lynn, 2023). However, this approach may have introduced self-selection bias, which will be considered in the analysis. An attrition analysis comparing the final longitudinal sample ($n = 252$) to the initial cohort ($n = 800$) revealed that those who remained were slightly younger (64.7 vs. 65.8 years; $p = .003$) and more likely to be male (59.9% vs. 49.2%; $p = .004$). No significant differences were found in educational attainment ($p = .924$).

The participants’ average age was 64.7 years (min: 60 – max 84, $SD = 4.92$) in Wave 1 (71.7 years in Wave 4). Sixty per cent of the participants were male (59.9%), and forty per cent were female (40.1%). Finally, 62.3% reported having a tertiary education, 36.9% secondary education, and the remaining 0.8% primary education or less. Overall, the sample was relatively young, male-dominated, and highly educated, constituting a case study rather than a representative sample. As such, the findings should not be generalized to the broader Romanian older adults online.

We defined three indexes, adapted from Loos & Ivan (2024), aiming at respectively measuring the usage of traditional media, digital media, and digital interpersonal communication media (see Table 1, next page). First, the Traditional Media Index includes three items: watching television on a TV set, listening to the radio on a radio set, and reading newspapers and magazines in the printed version. Second, the Digital Media Index refers to the same media but consumed either on computers (PC, laptop, tablet, etc.) or on mobile phones. The total number of items is five, in this case, such as reading newspapers, which is only captured in terms of consumption via the internet. And third, the Digital Interpersonal Communication Index gathers two media: SNS (Facebook, LinkedIn, etc.), and programs or applications (e.g., Zoom, Skype, or WhatsApp).

Table 1. Indexes of media usage

Time spent the previous day (minutes)		
Index	Variables	
Traditional Media	Watched television on a TV set (flat screen, etc.)	1
	Listened to the radio on a radio set (FM, DAB, etc.)	2
	Read newspapers and magazines in the print version (on paper)	3
Digital Media	Watched television on a ... computer (PC, laptop, tablet, etc.)	1
	... mobile phone (iPhone, Nokia, HTC, etc.)	2
	Listened to the radio on a ... computer (PC, laptop, tablet, etc.)	3
	... mobile phone (iPhone, Nokia, HTC, etc.)	4
	Read newspapers and magazines on the internet (at websites or designated applications)	5
Digital Interpersonal Communication	Used social network sites on the internet (e.g., Facebook, LinkedIn)	1
	Used chat programs on the internet (e.g., Skype, WhatsApp)	2

To ensure comparability, each index is computed as the average of its respective items. Expressed in minutes, the indexes represent the self-reported media usage time on the previous day. With a minimum threshold of zero, indicating no use, there is no imposed upper threshold. As expected for variables of this nature, the normal distribution was tested and not confirmed. Consequently, the most appropriate summary statistic is the median, while the first (Q1) and third (Q3) quartiles provide additional insight into the distribution (Higgins & Green, 2008). To examine the evolution of the indexes across waves, we compared their values over time (Kruskal-Wallis test), acknowledging that media practices typically do not change abruptly (Loos & Ivan, 2024).

We estimated three separate logistic regression models to examine the determinants of variation in each index between the first and last wave. Table 2 (next page) presents the variables included in the models, detailing their construction and the corresponding time points. Model estimation involved calculating odds ratios (OR) and reporting p-values at a 95% confidence level. Model fit parameters, including Cox-Snell, Nagelkerke, McFadden, and the Akaike Information Criterion (AIC), served to evaluate goodness-of-fit. All analyses were conducted using RStudio (version 2024.04.02).

Table 2. Variables in the multivariate models

Variables	Values
Endogenous variables	
Evolution Wave1 – Wave4	
Increase in Traditional Media	Yes: Index Wave4 > Index Wave1
Increase in Digital Media	
Increase in Digital Interpersonal Communication	Otherwise: Index Wave4 ≤ Index Wave1
Explanatory variables	
Evolution Wave1 – Wave4	
Retired during the period	Yes
Widowed during the period	No
Values as for Wave4	
Life satisfaction ¹	Low: 1-4
Health satisfaction ¹	Medium: 5-7 High: 8-10
Control variables	
Values as for Wave1	
Age	Continuous
Gender	Female Male
Education	Primary or less Secondary Tertiary

¹ 1: Completely dissatisfied – 10: Completely satisfied

4 Results

On the one hand, as expected, the three indexes show a smooth evolution during the period (Table 3, next page). Particularly, the Traditional Media Index remained steady, with a median of 80 minutes of usage in both the initial and the final wave ($p = .690$, indicating no statistically significant difference). Contrastingly, the other two indexes increased significantly: the median time devoted to Digital Media from 0.0 to 2.5 minutes ($p = .001$), and from 0.0 to 11.2 ($p < .001$) in the case of Digital Interpersonal Communication.

Table 3. Evolution of the three indexes along the four waves. Median [Q1, Q3]

N=252 Units: minutes	Wave1	Wave2	Wave3	Wave4	p overall ¹
Traditional Media Index	80.0 [50.0;140]	80.0 [50.0;120]	90.0 [60.0;120]	80.0 [50.0;120]	0.690
Digital Media Index	0.0 [0.0;6.0]	0.0 [0.0;6.0]	0.0 [0.0;12.0]	2.5 [0.0;12.0]	0.001
Digital Interpersonal Communication Index	0.0 [0.0;15.0]	0.0 [0.0;10.0]	10.0 [0.0;30.0]	11.2 [0.0;30.0]	<0.001

¹ Kruskal-Wallis test

On the other hand, the logistic regression models allow an understanding of the factors related to the increase in the three communication indexes (Table 4, next page). First, Model 1 revealed a significant association between the endogenous variable, the increase in the Traditional Media Index, and the increase in the other two indexes, although with different signs. We observe a negative relationship with the Digital Media Index ($OR = 0.85, p = .014$) and a positive one with the Digital Interpersonal Communication Index ($OR = 1.15, p = .030$). The significant parameter of the intercept ($OR = 4.41, p = .013$) indicates that part of the model’s explanatory power is not adequately reflected in the specified model. Second, in Model 2, the increase in the Traditional Media Index ($OR = 0.86, p = .014$) and the Digital Interpersonal Communication Index ($OR = 1.22, p = .001$) showed a statistically significant relationship with the increase in the Digital Media Index but in opposite directions, being negative in the former and positive in the latter. As in the previous model, the intercept was significant ($OR = 3.44, p = .035$).

Table 4. Logistic models to explain the increase in the three indexes

N =252	Model 1 ↑ Traditional Media		Model 2 ↑ Digital Media		Model 3 ↑ Digital Interpersonal Communication	
↑ Index (Wave1-Wave4) % of cases	46.8%		43.3%		47.2%	
	OR	p-value	OR	p-value	OR	p-value
(Intercept)	4.41	0.013*	3.44	0.035*	0.49	0.229
↑ Traditional Media Index				0.014*		0.030*
Yes			0.86		1.15	
↑ Digital Media Index		0.014*				0.001*
Yes	0.85				1.22	
↑ Digital Interpersonal Communication Index		0.030*		0.001*		
Yes	1.15		1.22			
Retired during the period		0.5		0.3		0.2
Yes	1.07		0.91		1.14	
Widowed during the period		0.8		0.2		0.4
Yes	0.97		0.88		1.09	
Satisfaction with life		>0.9		0.4		0.041*
Medium	1.03		1.13		1.45	
High	1.04		1.17		1.46	
Prefer not to answer	1.03		0.71		1.56	
Satisfaction with health		0.5		0.4		0.2
Medium	1.13		1.09		0.88	
High	1.17		1.13		0.88	
Prefer not to answer	0.99		0.89		1.24	
Age (cont.)	1.00	0.5	0.99	0.2	1.01	0.11
Gender		0.12		0.4		0.8
Male	0.89		0.94		1.02	
Education		0.2		0.3		0.8
Secondary	0.49		0.66		1.24	
Tertiary	0.50		0.62		1.26	
Model fit						
Cox Snell	0.0713		0.1053		0.1209	
Nagelkerke	0.0932		0.1382		0.1581	
McFadden	0.0511		0.0776		0.0890	
AIC	378.154		365.140		364.535	

Reference categories: Indexes: Otherwise; Gender: Female; Education: Primary or less;
 Retired during the period: No; Widowed during the period: No; Satisfaction with ...: Low.
 * Significance at least at the 5% level.

Third, Model 3 showed significant positive associations between the increase in the Digital Interpersonal Communication Index and both the increase in the Traditional Media Index ($OR = 1.15$, $p = .030$) and the Digital Media Index ($OR = 1.22$, $p = .001$). In this case, Life Satisfaction showed a positive relationship with the endogenous variable, as the OR values of medium and high life satisfaction are greater than one (1.45 and 1.46, respectively, $p = .041$). Additionally, the intercept was not statistically significant.

Regarding key life transitions, neither retirement nor widowhood emerged as significant predictors of increases in any of the three media indexes, as shown by the non-significant p -values in all three models. The same holds for satisfaction with health and the control variables (age, gender and educational attainment).

Finally, in terms of model fit, Model 1 showed modest explanatory power (e.g., Nagelkerke 0.0932), whereas Models 2 and 3 showed moderate explanatory power (Nagelkerke 0.1382 and 0.1581, respectively).

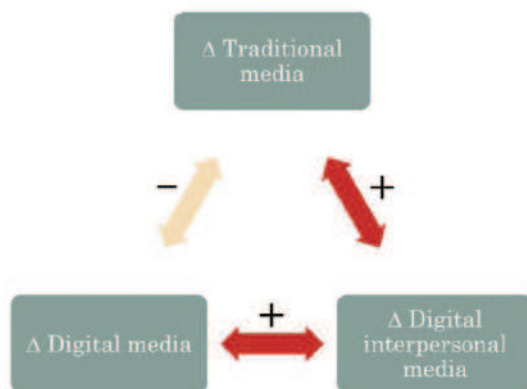
5 Discussion

Regarding RQ1, in the analyzed sample of older Romanian internet users, results show growth in digital media usage but steadiness in traditional media, with nuanced aspects of relevance. The COVID-19 pandemic shaped the transition, as the third wave of data collection was conducted in autumn 2020, a period of lockdowns and preeminence of what was called “social distancing,” which particularly shaped socialization in later life (e.g., Mandache & Ivan, 2024). The Traditional Media Index increased in Wave 3 (median: 90 min.) but returned to its previous level in Wave 4 (80 min.). Contrastingly, the Interpersonal Communication Index increased sharply in Wave 3, moving from a median of 0 to 10 minutes, and slightly increased in Wave 4 up to 11 minutes. In addition, the increase in the Digital Media Index only materialized in Wave 4, when it moved from zero to 2.5 minutes.

Changes in traditional media usage appear to be a temporary, circumstantial response to the extraordinary measures implemented during the pandemic. In contrast, the shifts in digital media consumption likely reflect both the effects of imposed social isolation and broader, ongoing trends of hyperdigitization (Beneito-Montagut et al., 2022; Vandycke & Viegas, 2022). As the latter remained or even increased in the last wave, these can be considered structural changes among the studied participants. However, the relevance of traditional media is unquestionable, as in the last wave, the 75% of the sample devoted at least 50 minutes, and 25% of the sample devoted a minimum of 2 hours to these media (Q1: 50, Q3: 120 min.), multiplying the time dedicated to the digital channels.

Regarding RQ2, as illustrated in Figure 1, the logistic models indicate a displacement effect between traditional and digital media. Such displacement is evidenced by the statistically significant and negative parameters in Models 1 and 2—a pattern previously identified by Nimrod (2019), Rosenberg and Nimrod (2022), and Taipale et al. (2024). However, digital interpersonal media appear to complement both traditional media (Models 1 and 3) and digital media (Models 2 and 3). These findings suggest that participants have integrated new everyday communication practices to achieve specific communicative goals at the personal level (both one-to-one and one-to-many, as described by Castells, 2009), without displacing mass media consumption. Such a pattern holds regardless of whether mass media is delivered through traditional or digital formats.

Figure 1. Displacement and complementarity between the three indexes in the sample of internet older adults. Romania, 2016 to 2023



A negative (positive) sign indicates displacement (complementarity) between the Indexes.

Regarding RQ3, the data allowed examining the role of retirement as a life transition influencing the shift from traditional to digital media. This was particularly feasible because all participants – who were 60 years or older at the start of data collection (Wave 1, 2016) – had retired by Wave 3 (2020). However, the most significant transformations in media use occurred between Wave 3 (2020) and Wave 4 (2023), once all the participants were already retired. Our analysis of time spent with traditional, digital, and digital-interpersonal media revealed no significant shifts in media use following retirement. The fact that all participants had already transitioned into retirement by the second wave may have acted as a structural limitation in testing this relationship, or it may suggest that for digital pioneers, the transition into retirement is less disruptive than for other groups. Moreover, the transition into widowhood was not associated with significant shifts in the observed media consumption patterns. Whereas our study found evidence of media displacement, it did not provide evidence for the role of major life transition events in media transitions among this cohort. Therefore, while both retirement and widowhood represent major life events in later life, they may lead to different media transitions than those captured in our study. Future research should explore in greater depth the nuanced media consumption patterns that older adults may adopt when facing major life transitions.

As for the other variables in the model, only life satisfaction showed a relationship with the Digital Interpersonal Communication. The result aligns with well-established evidence linking socialization, whether face-to-face or digitally mediated, to life satisfaction (e.g., Kong & Liu, 2023; Macdonald et al., 2021; Zhang et al., 2021). Available results indicate a positive relationship between digital technology use and life satisfaction, specifically SNS usage (Galia et al., 2021), with the relation being mediated by other factors, such as social capital (Kong & Liu, 2023). This study contributes to current knowledge by providing a direct comparison of different digital technologies with distinct socialization roles, as we do here by differentiating the Digital Media Index and the Digital Interpersonal Media Index. We show that, among the older internet pioneers in the study, interpersonal digital communication is positively associated with life satisfaction. Further studies should consider such nuances in discussing the role of digital technologies and their impact on people's life satisfaction, whether positive or

negative. We believe the analysis of individuals' digital behaviors that include different types of digital media, either mass media or interpersonal communication media, will help understand how media practices and their evolution over time might translate into life satisfaction.

Finally, regarding the control variables, the lack of statistically significant demographic predictors across all models highlights the potential uniformity of the studied sample. For example, age has not been a relevant predictor of media transitions in our sample. Although numerous studies report a negative association between chronological age and digital technology adoption in later life, our study shows that the age factor may become irrelevant to the media transition when using longitudinal data on the same sample. However, our data support the idea of diversity in later life, reflected in different motivations and patterns of use that are not necessarily related to biological age, but instead to the moment when individuals introduced different technologies into their lives.

The research we developed faces some limitations. The primary data derive from self-reported media usage time, which is inherently limited by recall biases and may not accurately reflect actual usage patterns, particularly in complex media environments where multitasking and passive consumption are usual. In addition, the survey exclusively targeted internet users, representing the early internet adopters and digital pioneers among the older Romanian population, characterized by a high educational level. Such a profile likely shaped the findings in two significant ways. First, as early adopters with high educational capital, participants may have possessed the digital literacy and resources to adapt more rapidly to the social disruptions of the COVID-19 pandemic, potentially over-representing the growth in digital interpersonal communication compared to the general population of Romanian seniors. Second, their established digital habits may have diminished the expected impact of retirement; since digital media were already integrated into their professional and personal lives, the transition out of the workforce did not necessitate the same 'digital leap' that might be observed in less technologically integrated cohorts. While this focus provided valuable insights, it limited the study's ability to capture broader digitalization trends in later life, particularly regarding those who entered the digital sphere during the analyzed period. This population is also relevant, and its study might provide a more nuanced view of the transitions we analyzed. In addition, attrition over the follow-up period may have introduced selection bias. An attrition analysis showed that participants who remained in the study were slightly younger and more likely to be male than those in the initial cohort, with no differences in educational attainment. These differences should be considered when interpreting the longitudinal findings.

Further research should consider extending the analysis at least from three perspectives. First, we record media changes by minutes of use, reported by participants for different media. Analyzing different media formats and the diversity of media typologies might help clarify the nuances of the „media displacement“ term. It might be that individuals do not necessarily change the time spent in different traditional or digital media, but they change the media formats: for example, moving from watching TV on a TV set to watching TV on a smartphone. Similarly, some transitions might occur for a short period, for example, just after the retirement moment, but they are not stable over time and are difficult to capture in a questionnaire-based longitudinal study that collected data biannually. Qualitative in-depth analyses are more suitable to explore more subtle patterns of media practices –and therefore media displacement– and the rationalities behind them. Second, further longitudinal studies could approach a less homogeneous sample, as nowadays the use of digital technologies is widely spread across various categories of older populations: the least educated, those from

rural and remote areas, and the oldest-old. Third, other life changes not captured in this study might be relevant. For instance, moving from large urban areas to smaller communities after retirement, or changing living arrangements – such as moving from living alone to living with children or grandchildren – could significantly alter media practices. Future longitudinal designs should incorporate more diverse samples to explore how these varied life-course events shape media transitions beyond the ‘pioneer’ experience.

6 Conclusions

Our findings underscore the importance of examining media displacement through a longitudinal and nuanced lens, rather than relying solely on cross-sectional analyses. This study demonstrates that media displacement among older adults becomes evident when observed over an extended time frame and when distinctions between different media typologies are carefully considered. Moreover, our results suggest that media displacement does not occur uniformly between all traditional and digital media. While traditional media consumption remained stable over time, digital interpersonal media – designed to facilitate socialization – were increasingly integrated into older adults’ daily lives. These platforms, rather than digital mass media, appear to be the primary drivers of the displacement effect.

This study also illustrates the value of focusing on older adults’ media practices. From this perspective, it constitutes a rather unique case, as it portrays the media transitions and displacements of a group of older adults who, at the time data collection began, were pioneers in using digital media in later life in Romania. Their journey through seven years, until 2023, tells the story of the evolving media and digital practices of older internet users who are also passing through a social disruption – the COVID-19 pandemic. Our data suggest that media transition is a slow and steady process; it does not occur „overnight“ and it is interesting to be investigated. Social disruptions, such as COVID-19, might act as a „push“ factor, speeding the process, without dramatically changing it.

The increase in time spent on digital activities between 2016 and 2023 demonstrates the relevance of hyperdigitization processes among older adults, and the data support the existence of a media transition during this period. For the digital pioneers in the study, traditional media occupy more time than digital media, but remain steady. In contrast, digital practices have stabilized at higher levels following the ‘push’ of the COVID-19 pandemic lockdowns. These results provide solid evidence that helps break the stereotypical assumption that aging inevitably leads to increased passivity or rejection of new technologies.

Author contributions

Conceptualization: MFA, LI. Data curation: MFA, FMC. Formal analysis: FMC. Funding acquisition: MFA, LI. Methodology: MFA. Writing – original draft: MFA, LI, FMC. Writing – review & editing: MFA, LI, FMC.

AI authorship and AI Use

The authors relied on Grammarly (full text) and ChatGPT (selected parts) for grammar and language enhancement. After using these tools, the authors reviewed and edited the content as needed and took full responsibility for the content of the publication.

Ethics declarations

Local ethics/IRB approval was granted from all the institutions involved. The research was conducted in accordance with relevant guidelines and regulations, and participants provided informed consent.

Competing interests

The authors declare no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

Data availability

The data underlying this article will be published by the project's PI institution, Concordia University, in due time.

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