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Analysis of Media Mechanisms in Promoting Physical Activity Among the Elderly: Developing a Paradigmatic Model

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ABSTRACT

The national media, with its extensive influence and credibility, serves as an effective instrument for informing, cultivating public culture, and guiding society toward healthy and constructive behaviors. The present study aimed to analyze media mechanisms in promoting physical activity among the elderly and to develop a paradigmatic model. This research is applied in terms of purpose and descriptive–survey in nature with a quantitative approach. The data collection tool was a researcher-made questionnaire consisting of 43 items, designed based on theoretical foundations and prior research. The statistical population included all physically active elderly individuals over 60 years old in Tehran who engaged in moderate to vigorous physical activity for at least three days per week and 90 minutes per session. A purposive sampling method was employed, and data were collected through 128 valid questionnaires. The content validity of the questionnaire was confirmed by experts, and construct validity was verified through confirmatory factor analysis, convergent validity indices (AVE), and composite reliability (CR). The reliability of the instrument was also reported at an acceptable level using Cronbach's alpha coefficient. Data were analyzed at both descriptive and inferential levels. The results indicated that media—particularly the national broadcasting network and mass media—play a significant role in informing, educating, cultivating public culture, and motivating the elderly to engage in physical activities. Furthermore, social media, by providing interactive platforms and facilitating experience sharing, complements traditional media in promoting an active lifestyle among the elderly. The paradigmatic model of the study demonstrated a good fit (GOF = 0.664), revealing that causal, contextual, and intervening conditions, through media strategies, can lead to outcomes such as the development of holistic health and increased participation of the elderly in sports activities.

Keywords: national media, physical activity among the elderly, cultural development, active lifestyle

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Introduction

Population aging is one of the defining demographic phenomena of the 21st century, carrying substantial social, economic, and health implications worldwide. As societies experience this demographic shift,

promoting physical activity among the elderly has become a major public health and social policy priority (1). Regular physical activity plays a vital role in preventing chronic diseases, enhancing mental well-being, and improving the overall quality of life in older adults (2). Despite these well-documented benefits, participation rates in physical activity tend to decline with age, often due to physiological limitations, lack of motivation, insufficient awareness, and social or environmental barriers (3). Consequently, the role of media as a social institution capable of influencing health behaviors, attitudes, and cultural norms is increasingly emphasized as a powerful driver of behavioral change among aging populations (4).

In the context of aging societies, media communication functions not merely as a channel for information dissemination but as a strategic mechanism for shaping perceptions and constructing narratives about health and aging (5). Older adults' attitudes toward physical activity are heavily influenced by how the media portrays aging, health, and sport participation. Positive media representations and targeted campaigns can help reduce stereotypes of frailty and dependence and encourage active, engaged lifestyles (6). This connection between media content and behavioral engagement is particularly critical for designing sustainable, inclusive programs that promote physical activity participation among older adults (7).

Public service and national broadcasting systems, due to their wide audience reach and cultural legitimacy, hold a unique position in advancing such agendas (6). In many countries, these media organizations are not only information providers but also act as policy instruments for promoting public health, fostering national identity, and reinforcing civic values (8). Within this framework, promoting physical activity among older adults aligns with the broader goals of media responsibility—bridging entertainment, education, and social welfare. Empirical evidence supports that the integration of sport and health messages into media content can significantly influence public awareness and motivate behavioral shifts toward active lifestyles (4).

At the same time, the evolution of digital technologies and social media platforms has transformed the traditional landscape of health communication. Unlike earlier one-way mass communication models, contemporary digital ecosystems enable participatory engagement, social interaction, and content co-creation among users (9). Social media not only provides platforms for information sharing but also facilitates peer motivation, self-monitoring, and social support—factors known to increase adherence to physical activity programs (10). Research indicates that exposure to positive physical activity content on platforms such as Instagram, Twitter, or YouTube can influence individuals' attitudes and intentions toward regular exercise (11). For older adults, the availability of online communities and interactive health campaigns creates new opportunities to overcome social isolation and maintain an active lifestyle (12).

Nevertheless, the effectiveness of media-based interventions depends on the alignment between message design, audience characteristics, and communication strategy (13). The elderly are not a homogeneous group; rather, they exhibit diverse preferences, cognitive capacities, and technological literacy levels that shape their engagement with media content (14). For instance, hierarchical cluster analyses have revealed meaningful differences in older adults' comfort, perceptions, and behavioral responses across age subgroups (14). Accordingly, crafting age-appropriate, culturally sensitive, and motivational messages is crucial for ensuring that media campaigns effectively reach and influence elderly audiences.

Mass media campaigns emphasizing health-related values have demonstrated measurable impacts in promoting physical activity participation in several countries. For example, the Australian campaign *This*

Girl Can successfully improved women's engagement with physical activity and sport, highlighting the motivational potential of inclusive media narratives (12). Similar findings have been observed in other global initiatives where media-driven interventions reduced psychological barriers and increased exercise participation (15). The World Health Organization's (WHO) global guidelines also recognize media communication as a strategic "investment" that works for physical activity promotion and health equity (2, 15).

From a sociological perspective, media influence extends beyond information dissemination; it encompasses agenda setting, symbolic construction, and value formation (8). The integration of media in sports diplomacy, for example, demonstrates how communication platforms shape collective identities and national health policies through persuasive storytelling and symbolic framing (8). In Iran and other developing societies, media power is often mobilized to serve dual functions—educational transformation and cultural cohesion—while simultaneously addressing health awareness and community participation in sport (7). In such contexts, media's contribution to promoting physical activity among older adults cannot be viewed in isolation; it must be situated within the broader sociocultural and institutional dynamics of national policy frameworks (4).

Furthermore, the integration of new technologies such as blockchain and the Internet of Things (IoT) has opened new pathways for transforming digital communication and health promotion infrastructures (16). These innovations can enhance the personalization of media messages, improve data-driven targeting, and create more adaptive systems for delivering physical activity content to elderly audiences. As digital ecosystems evolve, combining traditional media with interactive and smart communication tools can maximize the reach and impact of health promotion strategies (16).

However, despite these technological advances, research consistently reveals gaps in how older adults are represented and engaged within media systems (5). Older people are often underrepresented in sports media or portrayed as inactive, fragile, or disengaged from modern lifestyles (6). This lack of visibility contributes to internalized stereotypes and reduces the perceived accessibility of physical activity. Addressing these limitations requires deliberate strategies aimed at inclusive representation, diversified program design, and the mobilization of both traditional and digital media platforms (17). Public television, radio, and online media can play complementary roles in ensuring that sports and physical activity messages reach elderly audiences effectively (13).

Empirical studies emphasize that the presence of specialized sports programming for older adults on national broadcasting networks significantly influences motivation and participation rates (17). The content and structure of such programs—whether through televised exercise sessions, success stories, or expert interviews—serve as behavioral models that reinforce positive attitudes toward active living (4). Moreover, interactive features such as feedback systems, online discussion forums, and live broadcasts enhance engagement and foster a sense of belonging among elderly viewers (9). This participatory dimension transforms audiences from passive recipients into active agents of health promotion.

From a behavioral standpoint, motivation and self-efficacy are central to sustaining long-term engagement in physical activity. Media exposure, when aligned with psychosocial drivers such as social recognition, emotional connection, and self-improvement, can effectively trigger behavioral change (10). The creation of tailored health narratives and the strategic use of visual imagery are particularly powerful in

strengthening self-efficacy among older adults (5). Furthermore, integrating scientific and educational messages into mainstream entertainment formats enhances comprehension and retention, especially among audiences with lower health literacy (13).

The theoretical foundation of media influence on physical activity can also be interpreted through models of social learning and behavior change communication. According to social cognitive theory, individuals learn and adopt behaviors by observing models in their environment, particularly when such behaviors are associated with positive reinforcement (15). Mass media functions as a powerful external environment that provides symbolic models for behavior adoption. In the context of aging populations, depicting older adults as capable, active, and socially connected serves as a transformative narrative that challenges stereotypes and fosters empowerment (1).

The cultural dimension of media influence is equally significant. As noted in cross-cultural studies, the framing of sports and physical activity varies across societies, reflecting unique values, religious beliefs, and policy orientations (8). In countries with collectivist traditions, community-based campaigns that emphasize solidarity, family well-being, and national pride are more effective than individual-focused appeals (7). Therefore, developing culturally resonant paradigms is crucial for designing media strategies that promote sustainable physical activity behaviors among older populations.

Despite the growing body of research on the media's role in sports and health communication, there remains a lack of integrative frameworks that explain how media mechanisms collectively operate to enhance physical activity among older adults. Previous studies have explored specific aspects—such as message design (13), content diversity (6), and psychological engagement (10)—but few have examined the interaction among causal, contextual, and intervening conditions shaping these processes. This gap highlights the need for comprehensive models that integrate structural, technological, and behavioral dimensions to explain the complex pathways through which media influences elderly physical activity.

Considering the global trend toward digital transformation, future models must also account for the convergence between traditional and new media ecosystems (16). The growing intersection of television, mobile applications, social networks, and wearable technologies provides a multifaceted environment for promoting health and physical activity. Understanding how these interconnected systems can be optimized to motivate older adults requires both empirical validation and theoretical innovation.

In summary, the interplay between media communication, social motivation, and active aging represents a crucial frontier in public health and sports management research. As global aging accelerates, the ability of media to shape attitudes, foster participation, and build supportive social norms becomes a strategic tool for promoting well-being and reducing health disparities.

Therefore, the aim of this study is to analyze the media mechanisms that promote physical activity among the elderly and to develop a paradigmatic model explaining their structural and functional relationships.

Methods and Materials

The present study is applied in terms of purpose and descriptive–survey in nature and method. Adopting a quantitative approach, it analyzes media mechanisms in promoting physical activity among the elderly and develops a paradigmatic model. The data collection instrument was a researcher-made questionnaire designed based on theoretical foundations, previous research, and the study objectives. The questionnaire

included 43 items to measure the dimensions of the paradigmatic model. The validity of the instrument was confirmed through content validity (expert judgment) and construct validity using confirmatory factor analysis, convergent validity indices (AVE), and composite reliability (CR). The reliability of the questionnaire was assessed separately for each dimension using Cronbach's alpha coefficient, and the results indicated satisfactory internal consistency.

The statistical population of this study consisted of all elderly athletes over 60 years old in Tehran who engaged in moderate to vigorous physical activity for at least 90 minutes per session, three days a week. The inclusion criteria included the absence of movement-limiting diseases, motivation to participate in the research, and at least six months of regular exercise experience. The exclusion criteria included inability to continue exercise activities, occurrence of illness or injury limiting participation, lack of cooperation, and change of residence during the study period. Sampling was conducted using a purposive method, and data were collected from 128 valid questionnaires. Data analysis was performed at both descriptive and inferential levels. At the descriptive level, indicators such as mean, frequency, and standard deviation were used. At the inferential level, exploratory and confirmatory factor analyses, covariance analysis, and structural equation modeling (SEM) using the partial least squares (PLS) approach were employed. SPSS version 26 and Smart PLS version 3 software were used for statistical processing and validation of the conceptual model.

Findings and Results

Table 1 presents the descriptive statistical results. Out of 128 participants, 64.1% were male and 35.9% were female. The highest age frequency was among the 60–65 age group (53.1%), followed by the 65–70 group (32%) and those above 70 years (14.8%). In terms of education level, 54.7% held an associate degree, 18.8% had a high school diploma, 12.5% had below diploma education, 10.2% held a bachelor's degree, and 3.9% had a master's degree or higher.

Table 1. Descriptive Demographic Statistics of the Study

Variable	Category	Frequency	Percentage
Gender	Male	82	64.1
	Female	46	35.9
	Total	128	100
Age	60–65 years	68	53.1
	65–70 years	41	32
	Above 70 years	19	14.8
	Total	128	100
Education	Below diploma	16	12.5
	Diploma	24	18.8
	Associate degree	70	54.7
	Bachelor's degree	13	10.2
	Master's degree and PhD	5	3.9
	Total	128	100

In this section, measures of dispersion are provided for the 43 questionnaire items. Central tendency (mean) and dispersion indices (standard deviation and variance) are presented in Table 2.

Table 2. Frequency Distribution of Questionnaire Items Based on the Sample's Responses

Item	N	Likert Scale	Mean	Std. Deviation	Variance
Q1	128	Very low–Very high	4.18	0.87	0.76
Q2	128	"	3.64	0.81	0.67
Q3	128	"	3.62	1.16	1.35

Q4	128	"	3.29	1.08	1.17
Q5	128	"	3.59	1.10	1.21
Q6	128	"	3.68	0.92	0.85
Q7	128	"	3.06	1.00	1.00
Q8	128	"	3.77	0.91	0.83
Q9	128	"	3.28	1.09	1.19
Q10	128	"	3.71	1.08	1.18
Q11	128	"	3.24	1.21	1.47
Q12	128	"	3.48	0.92	0.85
Q13	128	"	3.28	1.11	1.24
Q14	128	"	3.32	1.11	1.24
Q15	128	"	3.77	1.04	1.07
Q16	128	"	4.38	0.70	0.49
Q17	128	"	4.17	0.87	0.75
Q18	128	"	3.66	0.80	0.65
Q19	128	"	3.64	1.13	1.28
Q20	128	"	3.32	1.06	1.13
Q21	128	"	3.60	1.07	1.15
Q22	128	"	3.72	0.88	0.78
Q23	128	"	3.10	1.00	1.01
Q24	128	"	3.78	0.90	0.81
Q25	128	"	3.22	1.07	1.16
Q26	128	"	3.74	1.05	1.10
Q27	128	"	3.26	1.19	1.42
Q28	128	"	3.50	0.91	0.83
Q29	128	"	3.28	1.10	1.23
Q30	128	"	3.35	1.11	1.23
Q31	128	"	3.77	1.02	1.05
Q32	128	"	4.37	0.68	0.47
Q33	128	"	4.17	0.87	0.75
Q34	128	"	3.66	0.81	0.66
Q35	128	"	3.67	1.10	1.23
Q36	128	"	3.34	1.04	1.09
Q37	128	"	3.60	1.08	1.17
Q38	128	"	3.67	0.91	0.83
Q39	128	"	3.15	0.96	0.93
Q40	128	"	3.78	0.84	0.70
Q41	128	"	3.22	1.06	1.13
Q42	128	"	3.72	1.03	1.06
Q43	128	"	3.28	1.19	1.40

Composite reliability for a construct is calculated as the ratio of the shared variance between the construct and its indicators to the sum of the construct variance and measurement error. This index reflects the degree of internal consistency in measurement models; a CR value greater than 0.70 indicates acceptable construct reliability, whereas values below 0.60 suggest insufficient reliability in the measurement model (ibid.). In addition, Cronbach's alpha was used to assess convergent validity and to examine the reliability of items (questionnaire statements) with respect to the study's latent variables. In evaluating the convergent validity of the study's paradigmatic model, the results showed that all components of the model had AVE values greater than 0.50. This indicates that each construct accounts for a substantial portion of the variance in its corresponding indicators; therefore, their convergent validity is confirmed. The results for these indices are presented in Tables 3 and 4 and serve as the basis for evaluating the validity of the study's measurement instrument.

Table 3. Composite Reliability (CR) and Convergent Validity (AVE) for Dimensions of the Paradigmatic Model

AVE	CR	Dimension	Paradigmatic Model Category
0.557	0.763	Role of organizations and institutions related to promoting sports among the elderly	Causal conditions
0.675	0.859	Challenges and barriers to promoting physical activity among the elderly	
0.739	0.895	Infrastructure and facilities for sports among the elderly	Contextual conditions
0.617	0.824	Increasing per capita sports resources	
0.809	0.927	Role of the national broadcaster and mass media	Intervening conditions
0.357	0.580	Role of cyberspace and social networks in attracting and promoting physical activity among the elderly	
0.647	0.877	Role of alternative media and messengers in promoting sports among the elderly	
0.690	0.899	Role of cultural promotion and education in promoting sports among the elderly	Strategy
0.685	0.865	Features of specialized sports programs for the elderly on national media	
0.413	0.694	Using media to cultivate an active lifestyle among the elderly	
0.715	0.909	Developing comprehensive health through sports among the elderly	Outcome
0.570	0.837	Attracting elderly audiences in national media and cyberspace	

Table 4. Composite Reliability (CR) and Convergent Validity (AVE) for Variables of the Paradigmatic Model

Model Category	Cronbach's Alpha	Composite Reliability (CR)	Convergent Validity (AVE)
Causal conditions	0.791	0.858	0.523
Contextual conditions	0.833	0.881	0.562
Core phenomenon	0.737	0.883	0.791
Intervening conditions	0.795	0.849	0.791
Strategy	0.865	0.894	0.550
Outcome	0.870	0.899	0.533

The questionnaire derived from the paradigmatic model contains 43 questions. Because the dimension labels are lengthy, a Latin abbreviation was assigned to each dimension to avoid letter congestion in the model designed in the software (Table 5).

Table 5. Abbreviations for Study Dimensions

Items	Abbreviation	Dimension	Paradigmatic Model Category
1–3	A	Role of organizations and institutions related to promoting sports among the elderly	Causal conditions
4–6	B	Challenges and barriers to promoting physical activity among the elderly	
7–9	C	Infrastructure and facilities for sports among the elderly	Contextual conditions
10–12	D	Increasing per capita sports resources	
13–15	E	Role of the national broadcaster and mass media	Intervening conditions
16–18	F	Role of cyberspace and social networks in attracting and promoting physical activity among the elderly	
19–22	G	Role of alternative media and messengers in promoting sports among the elderly	
23–26	H	Role of cultural promotion and education in promoting sports among the elderly	Strategy
26–29	I	Features of specialized sports programs for the elderly on national media	
30–33	J	Using media to cultivate an active lifestyle among the elderly	
34–37	K	Developing comprehensive health through sports among the elderly	Outcome
38–41	L	Attracting elderly audiences in national media and cyberspace	
42–43	PADIDEH	Core phenomenon	

A factor loading (lambda) is essentially a correlation coefficient between latent variables and observed variables in a measurement model. This coefficient determines the extent to which the latent variable explains the variance of the observed variables, and as a correlation, it must be statistically significant. The significance of a factor loading is examined using T-values and p-values. In fitting the measurement model via factor loadings, the correlations between the latent variable—represented here by the questionnaire's dimensions of causal conditions, core phenomenon, contextual conditions, intervening conditions, strategies, and outcomes—should exceed 0.70 to establish a stable correlation between the variable and its indicators; if below 0.70, the variable and indicator are not correlated. As shown in Figure 1, the correlations between the study variables and the items exceed 0.70; therefore, the measurement model's factor loadings are confirmed in the conceptual model's goodness-of-fit analysis. In this model, 10 items obtained values below 0.70. It is noteworthy that items Q6 and Q28, with factor loadings of 0.653 and 0.696 respectively, differ only slightly from 0.70; thus, this discrepancy can be overlooked, and the factor loadings of these two items may be deemed acceptable.

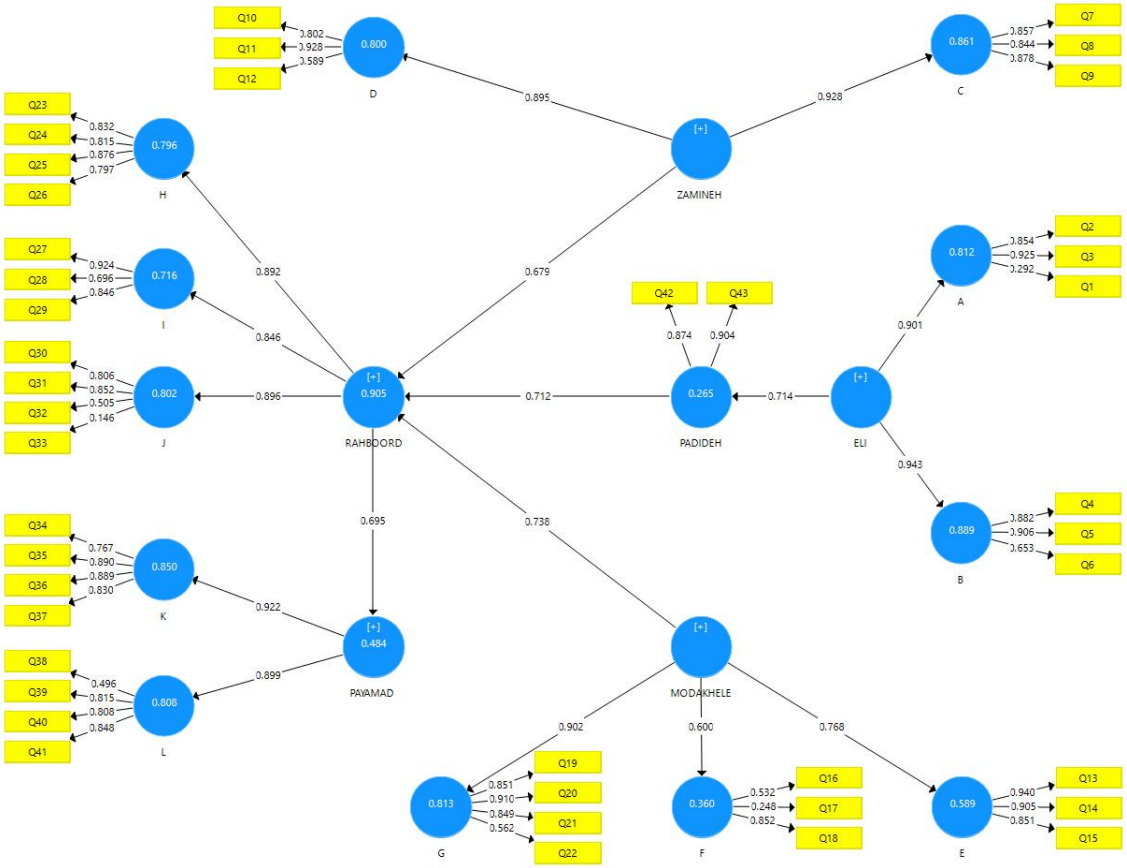

Figure 1. Factor loadings in the study model

The results of the structural model evaluation indicate that the coefficient of determination for the latent variables—especially the final dependent variable—is at an acceptable level, and a substantial portion of variance is explained by the items. Moreover, the t-values obtained in testing the structural model fit all exceeded the 90%, 95%, and 99% significance thresholds, indicating that the relationships between constructs are significant and the model fit is acceptable. Details of these results are presented in Table 6.

Table 6. z Significance Coefficients for Paths from Variables to Dimensions of the Study's Paradigmatic Model

No.	Path	T-statistic	p-value	Suitability (95%)
1	Causal conditions → Core phenomenon	5.109	0.000	Confirmed
2	Core phenomenon → Strategies	2.204	0.000	Confirmed
3	Contextual conditions → Strategy	8.026	0.000	Confirmed
4	Intervening conditions → Strategy	4.075	0.000	Confirmed
5	Strategy → Outcome	12.990	0.000	Confirmed

The results of the coefficient of determination (R^2) assessment in the study model show that the endogenous variables exhibit a desirable level of fit. The R^2 values for these constructs fall within the moderate to strong range, indicating a high capacity of the independent variables to explain variance in the dependent variables. These findings, presented in Table 7, support the structural validity of the model and the adequacy of the causal relationships among constructs along the study's confirmatory path.

Table 7. R^2 Values

Suitability	R^2	Dimension	Paradigmatic Model Category
Strong	0.810	Role of organizations and institutions related to promoting sports among the elderly	Causal conditions
Strong	0.888	Challenges and barriers to promoting physical activity among the elderly	
Strong	0.860	Infrastructure and facilities for sports among the elderly	Contextual conditions
Strong	0.799	Increasing per capita sports resources	
Strong	0.586	Role of the national broadcaster and mass media	Intervening conditions
Moderate	0.355	Role of cyberspace and social networks in attracting and promoting physical activity among the elderly	
Strong	0.811	Role of alternative media and messengers in promoting sports among the elderly	
Strong	0.794	Role of cultural promotion and education in promoting sports among the elderly	Strategy
Strong	0.713	Features of specialized sports programs for the elderly on national media	
Strong	0.801	Using media to cultivate an active lifestyle among the elderly	
Strong	0.849	Developing comprehensive health through sports among the elderly	Outcome
Strong	0.807	Attracting elderly audiences in national media and cyberspace	
Moderate	0.359	Core phenomenon	
Strong	0.480	Outcomes	
Strong	0.903	Strategies	

In this study, the results obtained from the calculation of Q^2 indicate a strong level for this index. According to Table 8, the research model demonstrates a desirable level of predictive power. This finding confirms the validity of the conceptual model in predicting the dependent variables.

Table 8. Q^2 Criterion Values

Validation	Q^2 (=1−SSE/SSO)	SSE	SSO	Dimension	Paradigmatic Model Category
Confirmed	0.426	220.565	384.000	Role of organizations and institutions related to promoting sports among the elderly	Causal conditions
Confirmed	0.565	166.939	384.000	Challenges and barriers to promoting physical activity among the elderly	
Confirmed	0.601	153.114	384.000	Infrastructure and facilities for sports among the elderly	Contextual conditions
Confirmed	0.463	206.242	384.000	Increasing per capita sports resources	
Confirmed	0.445	213.152	384.000	Role of the national broadcaster and mass media	Intervening conditions
Confirmed	0.120	337.920	384.000	Role of cyberspace and social networks in attracting and promoting physical activity among the elderly	

Confirmed	0.493	259.516	512.000	Role of alternative media and messengers in promoting sports among the elderly	
Confirmed	0.515	248.300	512.000	Role of cultural promotion and education in promoting sports among the elderly	Strategy
Confirmed	0.457	208.578	384.000	Features of specialized sports programs for the elderly on national media	
Confirmed	0.307	354.808	512.000	Using media to cultivate an active lifestyle among the elderly	
Confirmed	0.569	220.571	512.000	Developing comprehensive health through sports among the elderly	Outcome
Confirmed	0.432	290.658	512.000	Attracting elderly audiences in national media and cyberspace	
Confirmed	0.193	206.493	256.000	Core phenomenon	
Confirmed	0.229	788.996	1,024.000	Outcomes	
Confirmed	0.374	881.828	1,408.000	Strategies	

The Goodness of Fit (GOF) index, as a criterion for assessing the overall model fit, is calculated as the square root of the product of the average shared variance (AVE) and the average coefficient of determination (R^2). This index ranges between 0 and 1, where values of 0.01, 0.25, and 0.36 respectively indicate weak, moderate, and strong model fit. In this study, the GOF index was manually calculated and obtained as 0.664, indicating a highly desirable and strong fit of the model in terms of its overall theoretical structure. This result confirms the validity of the conceptual model from the perspective of statistical goodness of fit.

Discussion and Conclusion

The results of this study revealed that media—particularly national broadcasting organizations and social media networks—play a crucial and multidimensional role in promoting physical activity among the elderly. The findings demonstrated that causal, contextual, and intervening factors, through strategic media mechanisms, contribute to the enhancement of active lifestyles and the overall health of older adults. The paradigmatic model presented in this study, which exhibited a strong goodness of fit (GOF = 0.664), confirmed that effective media engagement can strengthen cultural norms of physical activity, increase participation rates among older adults, and promote holistic health outcomes. The relationships between causal conditions (institutional and organizational roles), strategies (educational, motivational, and promotional media interventions), and outcomes (enhanced participation and health improvement) were all statistically significant, supporting the conceptual validity of the model.

The significance of media as an influential social institution in health promotion has been widely discussed in the literature. The present findings align with earlier studies that identified media as an indispensable tool for fostering health literacy, shaping public perception, and influencing behavior across all age groups, especially among older adults (4, 7). The finding that the national broadcasting system plays a pivotal role in raising awareness and encouraging participation supports the argument that state-owned and public media possess the infrastructural power and cultural legitimacy necessary to influence large audiences (6). Moreover, the results confirm that by combining informative and motivational content, media can serve as both a behavioral model and an educational platform for promoting active aging. This finding echoes those of (17), who found that the sports television network significantly increased public engagement in physical activity by offering relatable and educational programming tailored to audience needs.

The study's results further emphasize the complementarity between traditional and new media in encouraging physical activity. The role of social media platforms in providing interactive and user-driven

environments was found to be particularly significant in extending the reach and influence of national media. These findings corroborate the arguments of (9) and (10), who demonstrated that digital platforms—through participatory features such as sharing, commenting, and community engagement—can shape individual behaviors toward exercise and health maintenance. Moreover, the integration of digital media with traditional broadcast channels creates a hybrid ecosystem that facilitates both mass awareness and personalized communication. This synergy is crucial in targeting diverse audiences within the elderly population, whose levels of technological literacy and access to digital tools vary considerably (11).

In line with the empirical evidence, the present study also found that cultural and educational media strategies play a decisive role in promoting exercise participation among older adults. The strong relationship between strategic interventions and positive outcomes observed in the structural model reinforces prior research showing that effective media campaigns can influence the psychosocial determinants of behavior such as self-efficacy, motivation, and social norms (2, 15). For example, public awareness campaigns that use emotionally resonant narratives or highlight role models among older adults can substantially enhance self-perception and encourage individuals to overcome internal barriers to participation (5). This finding also mirrors (12), whose evaluation of the “This Girl Can” campaign in Australia demonstrated that inclusive and empowering messages could effectively alter physical activity behaviors across target demographics. The present study’s confirmation of strong relationships among the media-related constructs suggests that similar approaches can be adapted to promote active aging in different cultural contexts.

An important insight from this study concerns the causal conditions that influence the effectiveness of media mechanisms. The role of organizational and institutional actors—including ministries, sports federations, and health agencies—in providing structural support for media initiatives was found to be critical. This finding is consistent with the conclusions of (8), who emphasized that the effectiveness of sports communication campaigns in Iran depends heavily on the alignment of institutional agendas and the integration of media power within broader social diplomacy frameworks. In this study, organizational involvement served as a facilitating factor for content production, distribution, and the mobilization of community resources for elderly engagement. In particular, institutions that prioritized collaboration between public media and local community organizations achieved greater outreach and sustainability of physical activity programs (13).

Furthermore, the study confirmed the mediating role of contextual factors such as access to sports facilities, the availability of community programs, and the inclusivity of public spaces. These findings align with (1), who demonstrated that environmental accessibility and community infrastructure are fundamental determinants of physical activity among older populations. When combined with media initiatives, these structural factors create a supportive ecosystem in which awareness messages are transformed into actionable behavior. Similarly, (3) emphasized the need for valid and accessible measurement tools to assess the physical activity levels of elderly individuals, underscoring that program design must consider both behavioral and environmental dimensions. The present findings corroborate these observations, suggesting that effective media promotion requires not only persuasive messaging but also supportive conditions that enable the translation of awareness into participation.

The study also highlighted that the intervening conditions—specifically the national media's credibility and the growing influence of social media—mediate the impact of media strategies on behavioral outcomes. The high explanatory power of these variables (R^2 values exceeding 0.7 in most dimensions) indicates that integrated communication strategies yield stronger behavioral effects. This aligns with the conclusions of (6) and (10), who found that the coexistence of professional journalistic content and participatory social media engagement produces synergistic outcomes in shaping public health behaviors. Moreover, the finding that interactive platforms enhance audience motivation supports the conceptual arguments of (9) regarding the engagement dynamics of digital media. The social validation and feedback mechanisms inherent in online communities serve as powerful motivators for sustained physical activity participation among older adults.

Additionally, this study's evidence for the strong role of media in cultural and educational promotion corresponds with the theoretical premise that media serve not only as communication instruments but also as cultural agents that influence societal values and behavioral norms (4, 7). The dissemination of culturally sensitive and age-appropriate content can transform the societal perception of aging, replacing the narrative of dependency with one of vitality and contribution. Such a reframing of cultural attitudes toward the elderly is essential for fostering inclusivity and long-term behavioral change. This supports the notion advanced by (8) that strategic media initiatives can act as instruments of social development, capable of influencing both individual and collective health practices.

Moreover, the findings revealed that holistic health promotion through media involves not only physical dimensions but also psychological and social well-being. The structural model's outcome variables—"comprehensive health development" and "increased elderly participation"—reflect this multidimensional understanding of health. These outcomes are consistent with global recommendations emphasizing integrative approaches to physical activity promotion (2, 15). In addition, (10) highlighted that during the COVID-19 pandemic, digital media served as a major resource for maintaining physical activity, diet awareness, and emotional well-being. Therefore, the convergence of educational, motivational, and emotional messaging within media frameworks can strengthen resilience and quality of life among older adults, as also implied in this study's results.

Technological advancement further reinforces the implications of the findings. The potential integration of smart technologies such as IoT, mobile health platforms, and blockchain in monitoring physical activity provides a forward-looking perspective on media-based health promotion (16). These technologies can facilitate personalized media interventions and enhance real-time feedback for older adults. Combined with community-level broadcasting and participatory programs, such innovations can create dynamic, adaptive systems for encouraging active lifestyles. These results suggest that future paradigms of media and health promotion should be technologically integrated, interactive, and contextually responsive to the evolving needs of the elderly population.

From a comparative standpoint, the findings of this study also align with global trends. For example, (12) found that mass media campaigns designed with inclusive and relatable messaging significantly improved participation rates among women in Australia. Similarly, (15) identified strategic communication as one of the eight key investments that reliably enhance population-level physical activity. The consistency of the present results with these international benchmarks suggests that similar approaches can be localized and

adapted within Iranian and other Middle Eastern contexts, considering cultural norms and communication infrastructures (7).

Overall, the results provide empirical confirmation that an integrated media strategy—combining national broadcasting, social media, and community-based initiatives—creates a sustainable model for promoting physical activity among the elderly. The strong statistical relationships between causal, contextual, and outcome variables affirm that successful interventions depend on both institutional cooperation and the use of culturally resonant media narratives. This study contributes to the growing body of evidence demonstrating that communication-driven models can effectively enhance participation, motivation, and well-being among aging populations worldwide.

Despite its strengths, this study is not without limitations. First, the research design relied on self-reported questionnaire data, which may be subject to social desirability bias and self-perception inaccuracies, particularly among elderly participants. Second, the study sample was limited to physically active older adults residing in Tehran, which constrains the generalizability of the findings to other geographic and socio-economic contexts. Third, while the structural model captured key media-related mechanisms, it did not incorporate longitudinal data that could demonstrate causal relationships over time. Additionally, the rapid evolution of digital media platforms may limit the temporal validity of the findings, as audience behaviors and technological capabilities continue to change. Finally, qualitative insights—such as interviews or focus group analyses—could have provided a deeper understanding of the emotional and experiential aspects of elderly engagement with media content, which quantitative methods alone may not fully capture.

Future research should explore longitudinal and mixed-method approaches to better understand the long-term effects of media exposure on physical activity behaviors among older adults. Comparative studies across different cultural and socio-economic contexts could provide valuable insights into how cultural norms and media infrastructures mediate behavioral outcomes. Additionally, future work could examine the role of emerging technologies such as artificial intelligence and wearable devices in personalizing health communication strategies for older adults. It would also be useful to investigate the psychological mechanisms—such as motivation, self-efficacy, and identity—that mediate the relationship between media exposure and sustained physical activity. Finally, expanding research to include non-active elderly populations could illuminate barriers to participation and identify ways to design more inclusive and effective media-based interventions.

In practical terms, the findings of this study underscore the need for policy makers, media producers, and health professionals to adopt integrated strategies that merge traditional and digital media in promoting active aging. Public broadcasting networks should design specialized programming that portrays elderly individuals as active contributors to society while providing educational and motivational content about physical activity. Collaboration between governmental institutions, sports organizations, and social media influencers can enhance message credibility and reach. Tailoring media content to accommodate differences in technological literacy and accessibility among elderly audiences will further improve engagement. Ultimately, incorporating health promotion messages into mainstream entertainment and digital platforms can normalize physical activity as a lifelong habit, contributing to healthier, more active aging populations.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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