



The Impact of Different Types of Advertisements on the Level of Physical Activity Among Postmenopausal Women

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Abstract

Background: Understanding the factors that influence physical activity in menopausal women is important for planning and implementing effective strategies to upgrade women's health. The purpose of this study was to examine the impact of different types of advertisements on the level of physical activity among postmenopausal women.

Methods: The current research employed an analytical cross-sectional design and was conducted on 385 postmenopausal women. Data were collected through physical activity questionnaires to assess the impact of advertisements on social networks and media, as well as word-of-mouth advertisements. SPSS software was used to analyze the data, and PLS software was used to check the model's fit.

Results: The findings of this research showed that advertisements on social networks ($T=11.38$, $B=0.8$), media advertisements ($T=6.42$, $B=0.53$), and word-of-mouth advertisements ($T=8.92$, $B=0.60$) had a positive and significant effect on postmenopausal women's physical activity, with the first item (i.e., social media advertisements) exerting the most significant impact according to the value of the T statistic, which must be greater than 1.96 at the 95% confidence level, and the B statistic as the impact coefficient. The overall fit of the model was equal to 0.53, indicating the high overall fitness of the model, further evidenced by an Standardized Root Mean Square Residual (SRMR) index of 0.06.

Conclusion: The results of this study indicated that the use of different advertising methods could have significant effects on menopausal women's tendency toward sports programs and venues. Therefore, it is essential for health organizations to continue to use these advertisements, especially on social media, to promote the physical activity level and improve the health and well-being of menopausal women.

Keywords: Advertising, Social networks, Media, Physical activity

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Introduction

Menopause is a natural phase in the lives of women; however, some of its symptoms can be severe enough to impact daily activities (1). The disorders that may arise during menopause can decrease quality of life (QoL), general health, happiness, and life expectancy (2). As menopausal women make up a significant portion of society, it is necessary to take measures to optimize their living conditions and reduce their social problems. Researchers have suggested that exercise and physical activity can alleviate psychological problems and improve mental health, happiness, and life expectancy (3). Exercise has also been found to have a vital role in reducing menopausal complications, improving QoL, and ultimately boosting women's health during menopause (4,5). Therefore, it is essential to identify influential factors that can increase the level of physical activity

among postmenopausal women.

Advertising is a powerful tool that can change people's behaviors and choices. In recent years, there has been an increase in advertising related to health and wellness, including physical activity (6). It is therefore necessary to identify the functions, goals, and capabilities of different emerging media for encouraging sports activities among societies. Mass media, with their extensive audience reach, are the best opportunities to attract more people to sports by providing appropriate advertisements. Different types of media have their own characteristics, structure, methods, performance, and costs. Therefore, choosing suitable media for advertising is essential and depends on audience coverage, target audience, and effectiveness (7). The review of research conducted in this field reveals the importance and positive impact of advertising in increasing sports activities (8-10).



The world has entered a new era since the early 1990s, and in the last decade, various human social life activities have undergone significant changes (11). Social media advertising refers to using social networking sites such as Facebook, Twitter, and Instagram to promote products or services. Social media advertising is becoming increasingly popular as more people use these platforms.

Research has shown that social media advertising can be an effective tool for promoting physical activity among menopausal women. For example, a study conducted by the University of Alabama found that women who were exposed to social media advertising on physical activity were more likely to engage in regular exercise. Social networks, particularly Instagram, have become essential for communication and interaction, especially for women (12).

Another form of advertising is known as word-of-mouth advertising, a type of social influence that can influence the recipient's behavior positively or negatively and is one of the oldest and most effective methods of transmitting information from person to person. The impact of word-of-mouth advertising extends beyond traditional methods. Personal recommendations from trusted sources can also play a significant role (8). Research indicates that 92% of people believe that recommendations from friends and family are more influential than any other form of advertising to reform their preferences. Additionally, social psychology studies have provided ample evidence regarding the interpersonal effects of interest in people's decision-making (13).

Based on the content discussed regarding the significance of specific advertising methods such as mass media, social networks, and word-of-mouth advertising, we aimed to investigate the influence of various types of advertising on the level of physical activity among postmenopausal women in Qazvin city.

Methods

This analytical cross-sectional study was conducted in 2022. The research environment was comprehensive health centers of Qazvin city. The research population included menopausal women who were referred to these centers to receive medical services, and the statistical population included all postmenopausal women living in Qazvin city. A total of 385 people were selected using the convenience non-probability sampling method among those referred to comprehensive health centers of the city. The criteria for entering women into the study were age of 50 to 60 years old, natural menopause, and passing at least one year from menopause.

Our data collection tool was a questionnaire consisting of two parts. The first part included the personal characteristics of the samples, including age, education level, and menopause period, and the second part

included four questionnaires about physical activities, advertisements on social networks, word-of-mouth advertisements, and media advertisements. This tool was made and validated by the researcher. The scoring of the questionnaires was based on a 5-point Likert scale from very low (1) to very high (5).

The physical activity questionnaire included ten questions prepared by the researcher by adapting the Capas questionnaire. The media advertising questionnaire was a researcher-made tool with five questions. Cronbach's alpha and convergent and divergent validity indices were used to measure the reliability of the questionnaires, as well as the combined reliability method.

The content validity of the questionnaires was checked and approved by the academic members of the Faculty of Sports Management.

The Tulshiram and Varsha questionnaire's convergent validity (AVE) was equal to 0.60, and its divergent validity was obtained as 0.70. Cronbach's alpha coefficient of the questionnaire was equal to 0.90, and its combined reliability (CR) index was calculated as 0.92.

In order to collect data, the questionnaires prepared were distributed among 385 women eligible to enter the study. The convergent validity (AVE) and divergent validity of Jang's questionnaire were equal to 0.51 and 0.71, respectively, and Cronbach's alpha coefficient of the questionnaire was obtained as 0.84, with a combined reliability of 0.87. Also, the media advertising questionnaire's AVE and divergent validity were confirmed as 0.64 and 0.80, respectively.

For data analysis, descriptive statistics (mean \pm standard deviation, frequency, and percentage) were used. The result of the Kolmogorov-Smirnov test rendered *P* values greater than 0.05, indicating the normal distribution of the data and the applicability of parametric tests. Structural equation modeling with the partial least squares approach was used to test the model and research hypotheses. In the structural equation modeling using the PLS method, unlike the variance-based approach, there is no single index for overall model evaluation. However, Tenenhaus et al (14) introduced a goodness-of-fit (GOF) index that considered both measurement and structural models, serving as a comprehensive performance metric. This index ranges from zero to one, and Wetzles et al (15) defined the values of 0.01, 0.25, and 0.36 as weak, medium, and strong GOF, respectively. The GOF index for this model was obtained as 0.603, indicating a generally desirable fit. SPSS version 26 and Smart Pls software were used for data analysis.

Results

Our sample population included women over 60 years old with at least one year passing from their menopause; 21.8% of the respondents held a diploma; 47.5% had a bachelor's degree, 25% had a master's degree, and 5.7%

held a doctorate. The results showed that 49.9%, 32.7%, 12.7%, and 4.7% of the participants had experienced 1-2, 2-4, 4-6, and >6 menopausal years, respectively. Also, the average age of the participants was 56 years, and 76% of them were married. Also, the average monthly income of the sample population was 130 490 000 Rails. Table 1 shows the frequency distribution of demographic variables.

The mean advertisement scores of social networks, media, and word-of-mouth were obtained as 3.18 ± 0.85 , 3.23 ± 0.74 , and 3.33 ± 0.77 , respectively. The mean score of physical activity was equal to 3.15 ± 0.99 (Table 2).

Examining the research hypotheses showed that advertisements in social networks ($T=11.38$, $B=0.86$), media advertising ($T=6.42$, $B=0.53$), and word-of-mouth advertising ($T=8.92$, $B=0.60$) had positive and significant effects on the tendency of postmenopausal women toward physical activities, evidenced by the

T statistic, which must be greater than 1.96 at the 95% confidence level, as well as the B index, representing the impact coefficient (Table 3, Figure 1). A T-value of higher than 1.96 at a significance level of $P < 0.05$ indicates a significant relationship between the variables.

Advertisements in social networks acquired a 95% confidence level of 0.86 and a T value of 11.380 with regard to physical activity. Media advertisements had an effect size of 0.53 on physical activity and a T value of 6.425, and the respective values for word-of-mouth advertising were obtained as 0.60 and 8.923, reflecting a meaningful and positive relationship.

Since the T statistic value was greater than 1.96, the hypothesis path was confirmed. Also, the examination of the overall fit of the model showed that according to the average of the shared values of the structures (the shared values of the first-order structures) and the average of R2 related to all endogenous structures of the model, the value

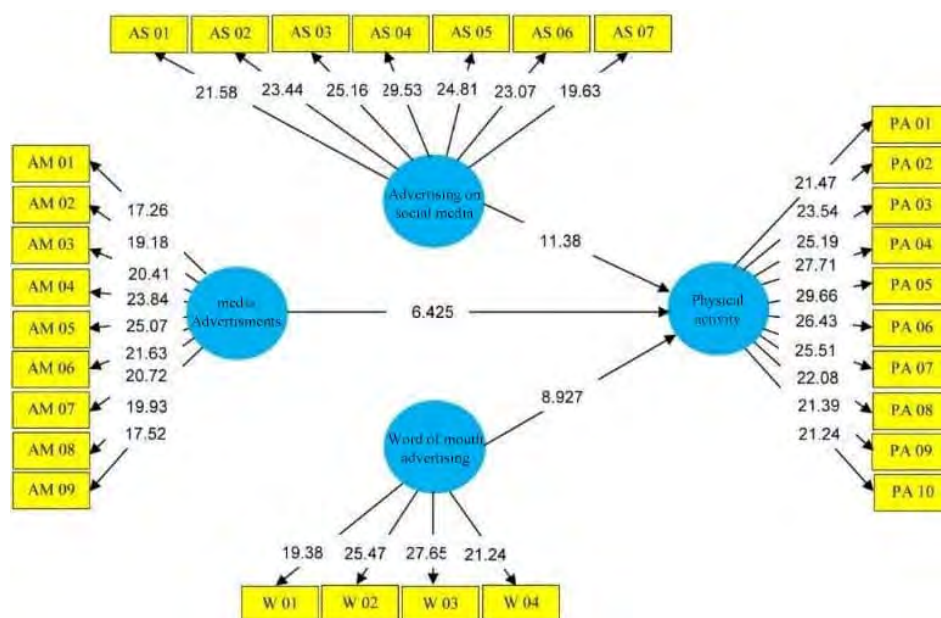


Figure 1. The final structural model of the research with critical values (T-statistics)

Table 1. Demographic characteristics of menopausal women participating in our study

Variables	Levels	Frequency	Percent
Education	Diploma	84	21.80
	Post-diploma	96	25.00
	Bachelor's degree	183	47.50
	Master's degree	22	5.70
	Doctorate	0	0.00
	Total		385
Duration of menopause (years)	1-2	192	49.88
	2-4	126	32.72
	4-6	49	12.73
	>6	18	4.67
	Total		385

Table 2. Descriptive Statistics for Research Variables

Variables	N	Mean	Standard deviation
Advertising on social networks	385	3.18	0.85
Media advertising	385	3.23	0.74
Word-of-mouth advertising	385	3.33	0.77
Physical activity	385	3.15	0.99

Table 3. Analysis of Research Hypotheses

Research hypotheses	T-value	Standard path coefficient	P value
H ₁ Advertising on social networks → Physical activity	11.38	0.86	0.050
H ₂ Media advertising → Physical activity	6.42	0.53	0.050
H ₃ Word-of-mouth advertising → Physical activity	8.92	0.60	0.050

of the GOF of a statistical model describes how well it fits into a set of observations and summarizes discrepancies between observed values and the values expected under a statistical model. The overall fit of the current research model was equal to 0.53, indicating a high (firm) level. Also, Standardized Root Mean Square Residual (SRMR) is defined as the difference between the observed correlation and the model's implied correlation matrix and allows for assessing the average magnitude of discrepancies between observed and expected correlations (as an absolute measure of (model) fit criterion index, which was equal to 0.06, reflecting the appropriate fit of the model).

Discussion

This study aimed to investigate the influence of different types of advertising on the physical activity of postmenopausal women in Qazvin city. We focused on the significance of advertising in the media and social networks, as well as word-of-mouth advertising. Our results provided insights into the impact of advertising on postmenopausal women's physical activity.

The present study's findings aligned with previous experiments conducted in this field, confirming the importance and positive impact of advertising on enthusiasm toward sports activities (8-10,16,17).

Data analysis revealed that advertisements on social networks had a positive and significant effect on the physical activity of postmenopausal women. This result can be attributed to the fact that older women in retirement spend a significant amount of their time surfing on social networks, which can influence their habits, engagement in sports, and leisure time activities. Additionally, social networks serve as platforms for information exchange and communication, shaping attitudes and influencing public opinion, as well as promoting sports, cultural tourism, social participation, and sports culture-building (18). Social media can provide menopausal women with information about the benefits and importance of physical activity, as well as tips on exercises and sports that suit them. Also, social media can connect menopausal women with peers interested in physical activity, who subsequently join together in exercise and sports programs and engage in activities such as competitions, sports challenges, and photo and video sharing. Social media can support menopausal women and encourage them to continue participating in physical activities. So, these women will have companions and supporters in this journey. Therefore, social media can be used as an effective tool to promote physical activity and improve the health of menopausal women.

The findings of this study were consistent with the results of Mulchrone, who demonstrated a direct correlation between influencers' fitness posts on Instagram and their followers' participation in public sports and online fitness classes (19). Olecká and colleagues also found

that social media advertising had a significant impact on people's engagement in physical activities during leisure time (20). Similarly, Shimoga et al identified a significant positive relationship between social media promotion and physical activity (21).

According to our results, media advertisements had an impact on the physical activity of postmenopausal women. This finding was consistent with the report of Ghasemi et al, L'Etang, and Ballard et al regarding the influence of media advertisements on physical activity (22-24). Creating a positive perception of sports activities in society can lead to a long-term change in people's attitudes towards sports, affecting their behavior. The media plays a significant role in shaping public culture by broadcasting sports media or sports events, influencing people's beliefs, values, norms, and tendencies to engage in sports (25). Media advertisements are usually visual and utilize body language to convey attractive messages. These advertisements can play an essential role in inspiring menopausal women to start or continue physical activity. Additionally, advertisements can lead to a better understanding of the role of physical activity in health and QoL improvement. In general, media advertising can increase awareness and self-confidence and inspire menopausal women to become more physically active.

Regarding our third hypothesis, word-of-mouth advertising was observed to have a direct and positive impact on physical activities. This observation aligned with announcements by Ghasemi et al, L'Etang, and Ballard et al regarding the positive effect of word-of-mouth advertising on physical activity levels (22-24). Word-of-mouth advertising is crucial in boosting awareness, disseminating key information, and influencing individuals' thoughts. Because it is provided by individuals who are not associated with providing sports services, word-of-mouth advertising holds high credibility. Given the declining trust in traditional advertising, utilizing word-of-mouth advertising can be an effective strategy to change the culture and attitudes of individuals, mainly middle-aged and older women, toward participating in physical activities. Recommendations from people who are renowned and trusted can carry more weight than advertisements from companies or organizations. People may talk about their experiences with participation in physical exercise and encourage others to do so. For example, a person who has reached his/her ideal weight through exercise can guide others on how they can achieve the same outcome. Also, some people are motivated to do the same when they hear about their friends' participation in physical activities and sports. Therefore, through word-of-mouth advertising, people become aware of each other's physical activity levels, encouraging them to reach the same level as their peers.

Exercise and physical activity, in general, have been found to enhance the overall health and happiness of

postmenopausal women. Considering the increasing population of postmenopausal women, it is crucial to implement measures to improve their societal health and participation in sports activities. This can be achieved by increasing awareness about the benefits of sports through mass media campaigns, informative advertisements, and conferences focused on sports and health. Lifestyle changes and promoting healthy behaviors before and after menopause can help alleviate ailments in this period and improve QoL.

Furthermore, word-of-mouth advertising can be a powerful marketing tool for establishing a strong sports brand image. It can positively influence attitudes towards sports by nourishing a favorable perception in the customer's mind. For instance, creative and innovative word-of-mouth advertising on platforms like Telegram, WhatsApp, and Instagram (with intelligent zooming) can be an effective means of promoting sports services.

In order to effectively promote physical activity among women, it is advisable to use the expertise of professionals in designing advertising campaigns. These campaigns should be creative and tailored to meet the expectations, demands, interests, and preferences of the target audience. By increasing their desire to engage with sports advertisements, viewers can better understand the benefits and significance of sports as long as they are conveyed in an informative manner. It is essential to explain about the unique advantages and role of sports and physical activities in serving viewers.

In this research, the questionnaires used for data collection included simple and easy-to-understand wording; however, the fact that they were the only tool of data collection was a limitation of this study. It is suggested that future studies focus on other periods of life as well and use additional methods (such as interviews) for data gathering.

Conclusion

This study aimed to investigate the role of advertising in promoting physical activity among postmenopausal women in Qazvin city, revealing that advertising could be an effective tool for promoting physical activity among menopausal women. Media advertising, social media advertising, and word-of-mouth advertising can all have a positive impact on the physical activity levels of menopausal women. Therefore, it is essential for companies and health organizations to continue to use these advertising methods to promote physical activity and improve the health and well-being of menopausal women.

Authors' Contribution

Conceptualization: Fahimeh Momenifar, Mohammad Pourranjbar.

Data curation: Fahimeh Momenifar, Sina Pourranjbar.

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Project administration: Fahimeh Momenifar.

Resources: Fahimeh Momenifar, Mohammad Pourranjbar, Sina Pourranjbar.

Validation: Sina Pourranjbar.

Writing the original draft: Mohammad Pourranjbar.

Writing-review & editing: Fahimeh Momenifar, Sina Pourranjbar.

Competing Interests

The authors declare that they have no conflict of interest.

Ethical Approval

This study was approved by the Research Council and Ethics Committee of Kerman University of Medical Sciences (ethics code: IR.KMU.REC.1402.469). The final report and analyses were performed without mentioning the names of the study participants.

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