

Virtual Reflections: Understanding Social Media's Role in the Self-Esteem and Identity of Older Adults

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ABSTRACT

The use of social media has been poorly investigated among the elderly users using a set of appropriately constructed statistical methods. The analyses of the various psychological well-being aspects of the elderly population reveals interesting results about the impact of their social media engagement. The quantitative study initiates with designing a structured questionnaire through secondary sources for primary data collection. It includes 394 primary responses from elderly users of social media. The conceptual model focused upon three aspects which are closely associated with the psychological well-being of such respondents and can be impacted by the daily use of social media. These factors include the self-esteem levels of the elderly, the body image issues and the self-identity they have about oneself. All the three factors have been investigated and confirmed using statistical methods for effectively measuring the group of respondents in the study. The mean score analyses of each of the components shows that the social media engagement levels of the elderly are at a medium level. They are not highly addicted to the use of social media and mostly confined themselves to the activities of information seeking from different blogs and posts rather than involving in sharing by themselves.

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Received: December 30, 2024; **Accepted:** January 04, 2024; **Published:** January 13, 2025

Keywords: Social Media, Older Adults, Self Esteem

Introduction

The use of social media has been increasing in the past few years where the individuals in the present world utilise these platforms for various aspects. Today's social media use is no longer restricted to entertainment but has established itself as a source of income, information and other activities [1,2]. While there are a number of individuals who have made a business out of using social media platforms, there are other individuals who rely on the authenticity of the information found on social media [3]. Whether it is entertainment or information seeking, the world of social media has successfully attracted a wide range of users. According to Statista, the average time spent on social media in 2023 stands at 151 minutes each day [4]. The monthly active users for Facebook, the highest used social media platform in the world is around 3 billion in the same year. From children to older adults, everyone today uses social media to either seek entertainment, information or establish communication. There are several studies that show how social media platforms have generated positive attributes across different users the studies focusing on the concerning aspects across a particular group of individuals especially the elderly are limited [5-7]. Social media often portrays a virtual world of its own which can sometimes generate mental dissatisfaction among the individuals. Research has shown that such instances where the problems of accepting the virtual and one's own reality causes psychological difficulties occur. It is mostly in case of sensitive individuals which consider adolescence, pregnant women or the elderly can be considered [8-11]. Social media usage is expected to grow in the future where

many other innovations would be available on this platform, making it difficult for anyone to abstain from it. As the situation shows, the social exclusion due to not being a part of a social media platform can be very alarming [12]. Hence, in such a situation it is important that research addresses various aspects of using social media on the elderly especially those who deserve different attention on such platforms.

The study here at times to investigate the level at which the social media engagement occurs for the elderly and how it impacts on their basic perception about themselves. This refers to the understanding about the aspects of self-esteem, self-identity and the body image issues that can occur due to constant engagement on social media. The suggestions for better handling elderly in the social media platforms can be suggested once the levels of usage are determined along with how it impacts on their self-perception. The study here is a descriptive formulation of understanding this aspect of social media usage among the elderly who sees a different set of issues from the remaining group of users. It realises the need to pay special attention to this category of users due to their psychological formulation and the social situation that they live in.

The following research questions would be investigated through this study using different methodological approaches.

RQ1: What is the level of social media engagement among the elderly population?

RQ2: Does the level of social media engagement impact on their perception about self?

RQ3: Do they generate consciousness about their physical and mental being due to their engagement levels in social media?

The study would run a detailed investigation on the above questions using a detailed statistical process. The study also conducts a rigorous literature review in the topic and extends the gaps in it for the future course of the study.

Review of Literature

The ageing population in the world is constantly increasing and with it is also increasing the number of social media users in this age group. This population can be defined as the ones who are on the verge of retirement and are around the age group of 60 years and above. The elderly age often comes with a number of social and economic changes that occur as soon as they stop working and rest after their years of work [13]. The transition phase that occurs at this point of time brings with it a number of psychological turmoil that makes it difficult for them to adjust to this new phase for a long period of time. The financial status changes as well as their social circle also changes and a change in their entire daily life activities is observed. While it can't be considered as the period where the individuals can explore the long lost interest, many of them are unable to engage due to the psychological changes occurring around [14,15]. Researchers have always considered this category of individuals interesting and unique due to the nature of physical and mental occurrences they undergo at this point of time. It is seen that the use of social media enhances during this time as they find it applicable in their day-to-day activities even more. It is seen that the use of social media by the elderly is mostly positive as is reflected from their posts and the overwhelming nature of using social media is mostly to maintain social engagement. The idea behind using positivity into social media usage by the elderly is with the thought of generating goodwill and attracting their own well-being through the reciprocated responses [16]. One of the other reasons why elderly people seem to be active on social media is their health environment and the protection that they wish to seek [17]. Along with perceived usefulness and perceived entertainment, the use of social media is bound to be highly associated with the help and motivation of the elderly. The study about different levels of motivation that draws an elderly individual towards social media usage has been researched extensively in the past. There are several extrinsic and intrinsic motivations that set individuals to go for social media [18,19]. The role of social motivation is also found to be very significant in the present body of knowledge. Apart from that, the family connectedness is another aspect that is closely found to be associated with the use of social media by the elderly [20]. These individuals consider it important to be a part of the social media world as they want to keep connected to their family members and avoid exclusion. Similarly, for elderly who live alone social media serves as a tool for battling loneliness and social isolation [21]. The role of social media use is also found to be highly relevant among the elderly when marking the extensive generation of depression and anxiety during the pandemic [22]. The research provides an underlying indication that whether it is the lonely ones or the family oriented elderly, the use of social media among them is very common. Along with the social inclusiveness attempt using social media by the elderly, there are a number of other aspects that have also been highlighted by the researchers in the past. It is found that social engagement levels are associated with depressive symptoms based on the type of activity they are engaged in [23]. It is not the frequency of using social media but the activities that the elderly are engaged in that have positive relational aspects with depression and anxiety. The activities such as looking for someone who has been absent from social media for a long time or looking at photographs of others are found to be associated with depressive and anxiety symptoms

[24]. The social media engagement of the elderly can be associated with the cognitive impairment levels which can be enhanced by being engaged in activities based on community [25]. There is a risk of social disconnectedness among the elderly if they remain away from social engagement for a long time. This can be altered by making them a part of the social circle in the social media platforms that can help in reducing cognitive decline [26].

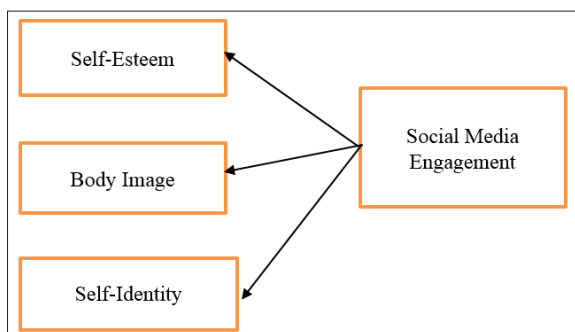
It is evident that while the use of social media by the elderly can lead to a number of problem-solving aspects from being connected to avoiding cognitive decline or health deterioration, the activities they are involved in can also lead to psychological disbalance in them. The use of social media here becomes very crucial when considering the elderly and needs to be investigated further. The study understands three very important components of psychological well-being which are triggered in social media usage. It is the self-esteem that the elderly develops, the body image issues that they might encounter mentally after looking at the social media graphics and the self-identity that they called about themselves after being exposed to social media [27-29]. These three attributes can be used to understand the overall mental well-being of the elderly and suggest preventive measures based on the type of relation it unfolds.

Research Methodology

The research framework for the study has been designed specifically to make the derivations from the analysis error and bias free. The study here attempts to understand how the role of social media blossoms with respect to the perception held by older adults. The attempt is to answer the research questions using statistical tools and hence in this section the detailed procedure leading upto the analysis of the set research objectives.

The population of the study includes the elderly population of the country of India. As the specificity of the study demands a number of inclusions in its final set of respondents, a non-probabilistic method of sampling where judgement and convenience sampling are used. The condition that is implemented for the purpose of the judgment sampling is the requirement for the respondents to be above the age of 60 years. Moreover, the convenience sampling is used to make the data collection process according to the convenience of the respondents. The study focuses on considering an optimum sample size for the data analysis. As the total number of elderly population in the country is above a lakh which is considered as infinite population according to Krejcie and Morgan, a minimum sample size of 384 is desired for such a study [30]. Hereby, a total sample size of maximum 400 has been established for the purpose of the study. The collected set of responses would be analysed for missing data analysis and only the set of full data would be considered.

The secondary sources of data derived from the books, journals, reports and other such documents has been extensively used for the purpose of preparing the research instrument in the study. As surveys are conducted for the study, a structured questionnaire has been designed here using the secondary sources of data. The questionnaire enquired about the demographics of the respondents followed by 5 Point Likert type scales enquiring about social media engagement and the components of self-esteem, self-identity and body image. The structured questionnaire prepared here is distributed in both online and offline modes and uses a self-administered method for collecting the data. The conceptual model hereby developed for the purpose of the study is as follows-



The hypotheses to be tested as a part of the statistical analysis are as follows-

H01: There is a significant impact of social media engagement level of the elderly on their self-esteem levels.

H02: The social media engagement of the elderly has a significant impact on the body image developed by them.

H03: There is a significant impact of the social media engagement of the elderly on the self-identity of the individuals.

The conceptual model developed has considered different elements for the purpose of the study. Firstly, the social media engagement level among the elderly has been investigated using a thorough scale which enquires about their contribution and creation in the social media platforms. The self-esteem, body image and self-identity are all analysed using scales established in the current literature and modifying according to the requirements of the study. Each of these scales generates a high level of information about the elderly group. Hence, to understand each of the scales and deduce the underlying behaviour, the study would use a detailed mean score analysis for each of the scales. Further, to estimate the ability of the scales with respect to this study, its sampling adequacy and factor extraction would be confirmed using principal component analysis (PCA). The relationship between the variables as shown in the model above would be analysed using multiple linear regression. Finally, for the demographic association, there would be a t-test with ANOVA implied.

The next section is dedicated towards providing the detailed data analysis process conducted to fulfil the research questions established in the study.

Data Analysis and Interpretation

The detailed investigation on the data collected showed that there were a number of incomplete responses which are not considered for the final analysis. A total of 394 sets of responses are considered for the final process. Before moving into the analysis, the investigation about the demographic composition of the respondents is conducted below.

There is a total of three demographics considered for the purpose of the study. The gender of the respondent, their education level and the exact age group in which they fall. As age is a major aspect of this study and gender and education level can represent a number of things about the respondents, the analysis of these factors can generate interesting results.

Frequencies of Gender

Gender	Counts	% of Total	Cumulative %
Female	276	70.1 %	70.1 %
Male	118	29.9 %	100.0 %

Frequencies of Age Group

Gender	Counts	% of Total	Cumulative %
60-65	158	40.1 %	40.1 %
66-70	79	20.1 %	60.2 %
71-75	118	29.9 %	90.1 %
76-80	39	9.9 %	100.0 %

Frequencies of Education Level

Gender	Counts	% of Total	Cumulative %
Graduate	117	29.7 %	29.7 %
Post Graduate	198	50.3 %	79.9 %
Undergraduate	79	20.1 %	100.0 %

The respondents consist of 70.1% females and only 29.9% are males. The educational levels majorly comprise of post-graduation with 50.3% followed by 29.7% graduates and 20.1% undergraduates. The respondents are from an age group of more than 60 years, however, 40.1% are between 60 to 65 years of age, 29.9% are in the age group of 71 to 75 years, 20.1% are between 66 to 70 years and 9.9% are in 76 to 80 years of age. There are no respondents above the age of 80 years due to their health restrictions which led to difficulty in responding to the survey. The demographics shows the distribution across different age groups among the elderly and would generate an interesting result.

The questionnaire design includes a total of 46 items that investigate different aspects of the study. Now, before moving ahead, the PCA is conducted to extract the underlying factors from the items. The PCA would allow one to estimate the factor loadings of each item along with the number of factors that have an eigenvalue of more than 1. The use of varimax rotation is considered to maximise the factor loadings and fulfil the requirement of 0.4 in each factor loading as suggested by Hair, et al. [31]. Apart from the PCA, the sampling adequacy is also tested using KMO and Bartlett's test of sphericity. The results from each of these tests are as shown below.

Component Loadings

	Component				Uniqueness
	1	2	3	4	
On the whole, I am satisfied with myself			-0.928		0.0742
At times I think I am no good at all			0.562		0.5842
I feel that I have a number of good qualities			-0.815		0.0370
I am able to do things as well as most other people			-0.601		0.4186
I feel I do not have much to be proud of			0.878		0.2233
I certainly feel useless at times			-0.725		0.3154
I feel that I'm a person of worth			-0.832		0.0385
I wish I could have more respect for myself.			0.904		0.1244
All in all, I am inclined to think that I am a failure			-0.725		0.3154
I take a positive attitude toward myself			-0.739		0.4377
My body looks good	-0.645				0.4327

My body is healthy.	-0.443			0.4803
I feel better about my body when I'm fitter	-0.728			0.2630
My body is overweight	-0.415			0.7680
Having a well-proportioned body is important to me	0.726			0.2646
I'm usually well-dressed	-0.755			
I've often wanted to be taller.	-0.509			0.5773
Most days I feel bad about my body.	0.642			0.4617
I'm more aware of my body when I'm in social situations	-0.541			0.3339
I read posts related to different Brands on social media			0.787	0.1114
I read fanpage(s) on social network sites			0.806	0.2232
I watch pictures/graphics on social media			0.885	0.1095
I follow blogs on social media			0.960	0.0710
I comment on videos /posts on social media			0.628	0.0868
I share related posts on social media			0.893	0.8145
I initiate posts on social media			0.569	0.0739
I post pictures/graphics on social media			0.893	0.4331
I write reviews on social media				0.0739
I am a trustworthy person.		0.662		0.4197
In order to do anything, I first need other people's approval.		0.960		0.0710
I consider myself to be a very uptight and highly strung person.		0.849		0.0961
I have yet to achieve anything I consider to be important in my life.		0.893		0.0739
I am a man/woman of my word		0.461		0.5544
I find it hard to embark on anything without other people's support.		0.964		0.0497
I am more sensitive than the majority of people.		0.656		0.1521
I have always overcome any difficulties I have encountered in my life.		-0.589		0.4391
I am a decent, honest person.		0.610		0.9299
When taking a decision, I depend too much on other people's opinions		0.960		0.0710
If I could start my life over again, I would not change very much.		-0.484		0.3466
I try not to do anything that might hurt others.		0.926		0.0385
I find it difficult to take decisions on my own		0.574		0.5136
I am an emotionally strong person.		0.893		0.0739

I feel proud of how I am managing my life.			-0.589		0.4391
I suffer too much when something goes wrong.			0.564		0.3812
My promises are sacred.			0.872		0.0782
I know how to look after myself so as not to suffer.			-0.654		0.2639

Note: 'varimax' rotation was used

The above table shows that there are clearly four factors underlying the 46 items in the questionnaire. All the items score a factor loading of more than 0.4 representing significant adherence to the factors. Each of the four factors deduced would be investigated in detail in the upcoming sections. The results of the sampling adequacy tests are as follows.

Bartlett's Test of Sphericity

χ^2	df	p
Inf	1035	< .001

KMO Measure of Sampling Adequacy

	MSA
Overall	0.715
On the whole, I am satisfied with myself	0.705
At times I think I am no good at all	0.778
I feel that I have a number of good qualities	0.750
I am able to do things as well as most other people	0.766
I feel I do not have much to be proud of	0.988
I certainly feel useless at times	0.805
I feel that I'm a person of worth	0.782
I wish I could have more respect for myself.	0.601
All in all, I am inclined to think that I am a failure	0.617
I take a positive attitude toward myself	0.900
My body looks good	0.987
My body is healthy.	0.822
I feel better about my body when I'm fitter	0.788
My body is overweight	0.851
Having a well-proportioned body is important to me	0.851
I'm usually well-dressed	0.927
I've often wanted to be taller.	0.672
Most days I feel bad about my body.	0.513
I'm more aware of my body when I'm in social situations	0.661
I read posts related to different Brands on social media	0.705
I read fanpage(s) on social network sites	0.778
I watch pictures/graphics on social media	0.750
I follow blogs on social media	0.768
I comment on videos /posts on social media	0.568
I share related posts on social media	0.825
I initiate posts on social media	0.852
I post pictures/graphics on social media	0.681
I write reviews on social media	0.667
I am a trustworthy person.	0.700

In order to do anything, I first need other people's approval.	0.787
I consider myself to be a very uptight and highly strung person.	0.892
I have yet to achieve anything I consider to be important in my life.	0.788
I am a man/woman of my word	0.811
I find it hard to embark on anything without other people's support.	0.851
I am more sensitive than the majority of people.	0.907
I have always overcome any difficulties I have encountered in my life.	0.672
I am a decent, honest person.	0.522
When taking a decision, I depend too much on other people's opinions	0.911
If I could start my life over again, I would not change very much.	0.705

I try not to do anything that might hurt others.	0.778
I find it difficult to take decisions on my own	0.850
I am an emotionally strong person.	0.766
I feel proud of how I am managing my life.	0.988
I suffer too much when something goes wrong.	0.805
My promises are sacred.	0.882
I know how to look after myself so as not to suffer.	0.601

The overall KMO value stands at 0.715 which is according to the acceptable level of more than 0.7 for sampling adequacy. Bartlett's test shows a p-value of less than 0.05 which is according to the requirement for sampling adequacy. This analysis reveals that the items in the questionnaire are adequately represented by the samples gathered here.

Now, each of the factors deduced are discussed in detail here-

Self-Esteem

The very first scale in the questionnaire is on the self-esteem levels of the elderly respondents. It included a total of 10 items that investigated the self-esteem held by these respondents. This factor refers to understanding about the satisfaction and respect one has for one's accomplishments. As these respondents have reached a certain stage in their lives, these self-esteem levels might alter. The responses here are collected to understand on which items they score highest and lowest. The mean scores across each of the items are as follows-

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
On the whole, I am satisfied with myself	394	2.90	3.00	1.134	1	5
At times I think I am no good at all	394	2.69	2.00	1.268	1	5
I feel that I have a number of good qualities	394	3.10	3.00	0.946	2	5
I am able to do things as well as most other people	394	3.90	4.00	0.832	3	5
I feel I do not have much to be proud of	394	2.80	3.00	1.246	1	5
I certainly feel useless at times	394	2.59	2.00	1.357	1	5
I feel that I'm a person of worth	394	3.00	3.00	0.775	2	4
I wish I could have more respect for myself.	394	3.60	3.50	0.663	3	5
All in all, I am inclined to think that I am a failure	394	2.59	2.00	1.357	1	5
I take a positive attitude toward myself	394	3.20	3.00	1.075	1	5

The mean scores evaluated show that the highest score is at 3.90 which represents the high level of agreement of the respondents on being able to do things like most other people. It is followed by the score of 3.60 which is to show a high level of agreement on the desire to have more respect for themselves. The lowest score is at 2.59 for two items. Firstly, it shows the lowest level of agreement about feeling useless at times and being inclined to think of themselves as a failure. The mean score analysis shows that the respondents do have a high level of self-esteem although they did wish they could have more respect for themselves. But they consider themselves to be satisfactorily accomplishing different tasks without generating the feeling of uselessness.

Body Image

The factor of body image is measured using a total of 9 items. It enquires about the level of agreement the elderly respondents have about them being happy about the way they look. It enquires about different aspects of body image such as looks, weight, dressing etc. The responses against each of the items are as shown below.

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
My body looks good	394	2.70	3.00	1.187	1	5
My body is healthy.	394	3.10	3.00	1.041	1	5
I feel better about my body when I'm fitter	394	4.30	4.00	0.643	3	5
My body is overweight	394	2.99	3.00	1.268	1	5

Having a well-proportioned body is important to me	394	3.10	3.00	0.832	2	4
I'm usually well-dressed	394	2.79	3.00	1.248	1	5
I've often wanted to be taller.	394	3.29	3.00	1.273	1	5
Most days I feel bad about my body.	394	3.00	3.00	1.000	2	5
I'm more aware of my body when I'm in social situations	394	2.70	3.00	0.898	1	4

The highest mean score is at 4.30 which is very high as compared to the scores for the other items. It shows a very high level of agreement among the elderly about feeling better when they are fitter. It is followed by 3.29 which shows their desire to be taller. The lowest score is at 2.70 for the items stating their body looks good and being more aware of their body in social situations. The overall analysis of the mean score analysis shows that the elderly respondents have a strong desire to be fit. However, their agreement is the lowest when it comes to agreeing their bodies to look good or knowing about handling it in social situations. The body image concerns are found to exist among the elderly respondents to a considerable extent and need to be investigated further.

Self-Identity

The next scale with 18 items measures the self-identity of the elderly respondents. This factor is used to understand how the respondents perceive themselves and want to portray their image in front of others. The self-identity understanding consists of different aspects such as their personality attributes along with their values and beliefs.

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
I am a trustworthy person.	394	4.70	5.00	0.459	4	5
In order to do anything, I first need other people's approval.	394	3.10	3.00	1.378	1	5
I consider myself to be a very uptight and highly strung person.	394	3.30	3.00	0.640	2	4
I have yet to achieve anything I consider to be important in my life.	394	2.60	2.50	1.356	1	5
I am a man/woman of my word	394	4.40	4.50	0.666	3	5
I find it hard to embark on anything without other people's support.	394	2.99	3.00	1.266	1	5
I am more sensitive than the majority of people.	394	3.20	3.00	1.273	1	5
Most days I feel bad about my body.	394	3.00	3.00	1.000	2	5
I'm more aware of my body when I'm in social situations	394	2.70	3.00	0.898	1	4

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I consider myself to be a very uptight and highly strung person.	394	3.30	3.00	0.640	2	4
I have yet to achieve anything I consider to be important in my life.	394	2.60	2.50	1.356	1	5
I am a man/woman of my word	394	4.40	4.50	0.666	3	5
I find it hard to embark on anything without other people's support.	394	2.99	3.00	1.266	1	5
I am more sensitive than the majority of people.	394	3.20	3.00	1.075	1	5
I have always overcome any difficulties I have encountered in my life.	394	4.21	4.00	0.749	3	5
I am a decent, honest person.	394	4.70	5.00	0.459	4	5

When taking a decision, I depend too much on other people's opinions	394	3.10	3.00	1.378	1	5
If I could start my life over again, I would not change very much.	394	3.10	3.00	1.142	1	5
I try not to do anything that might hurt others.	394	3.10	3.00	1.135	1	5
I find it difficult to take decisions on my own	394	3.30	3.50	1.269	1	5
I am an emotionally strong person.	394	2.60	2.50	1.356	1	5
I feel proud of how I am managing my life.	394	4.21	4.00	0.749	3	5
I suffer too much when something goes wrong.	394	3.81	4.00	1.166	2	5
My promises are sacred.	394	3.40	3.00	0.491	3	4
I know how to look after myself so as not to suffer.	394	3.00	3.00	0.777	2	4

The mean score analysis shows that the scores are quite high for each of the items as compared to the previous scales. The highest score is at 4.70 which shows a very high level of agreement about the elderly respondents being trustworthy, decent and honest. This shows that the respondents majorly consider themselves to have these qualities in them. There are also high scores of 4.21 and 4.20 seen for attributes of being a person of their word and being proud of the way they are managing their lives. The lowest score is at 2.60 and shows low agreement about having anything to achieve yet in life and being an emotionally strong person. The analysis of the self-identity levels of the respondents show that the levels are high and mostly the respondents considered highly about themselves but are lacking when it comes to being emotionally strong.

Social Media Engagement

The main purpose of the study is to see how the levels of social media engagement has shaped up the above three aspects of the elderly respondents. This scale used 9 items to show how the respondents indulge themselves in the world of social media.

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
I read posts related to different Brands on social media	394	3.10	3.00	1.378	1	5
I read fanpage(s) on social network sites	394	2.80	3.00	0.982	1	4
I watch pictures/graphics on social media	394	2.90	3.00	1.226	1	5
I follow blogs on social media	394	3.10	3.00	1.378	1	5
I comment on videos /posts on social media	394	2.80	3.00	1.079	1	4
I share related posts on social media	394	2.90	3.00	1.222	1	5
I initiate posts on social media	394	2.60	2.50	1.356	1	5
I post pictures/graphics on social media	394	2.40	2.50	1.115	1	4
I write reviews on social media	394	2.60	2.50	1.356	1	5

The mean score for each item is around 3 and the highest recorded is at 3.10 for reading posts and blogs on social media. The lowest score is at 2.40 which shows the lowest indulgence in posting photos on social media. The remaining items show a mean score above 2.60 showing mid-level of agreement about the other activities on social media. The social media engagement looking into the responses here can be found to be at a moderate level. The elderly users are not highly indulged in the activities of social media but do follow it at a medium level.

As all the four scales and the individual scores are established, the overall mean scores for the factors and the correlation between them is considered in the next section.

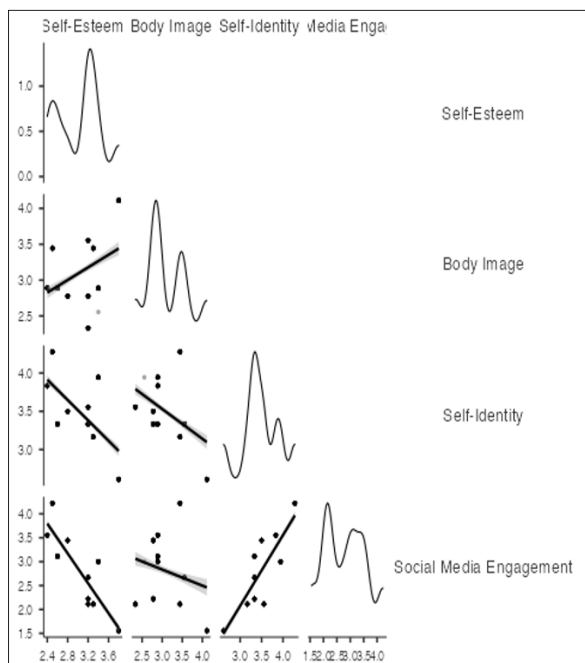
Descriptives

	N	Mean	Median	SD	Minimum	Maximum
Self-Esteem	394	3.04	3.20	0.425	2.40	3.80
Body Image	394	3.11	2.89	0.490	2.33	4.11
Self-Identity	394	3.49	3.42	0.435	2.61	4.28
Social Media Engagement	394	2.80	2.83	0.774	1.56	4.22

The mean scores for the four scales show the highest for self-identity and lowest for social media engagement. To investigate the impact of social media engagement on these three factors, multiple linear regression would be conducted. But before that the correlation between the factors are established.

Correlation Matrix

		Self-Esteem	Body Image	Self-Identity	Social Media Engagement
Self-Esteem	Pearson's r	—			
	p-value	—			
Body Image	Pearson's r	0.380	—		
	p-value	<.001	—		
Self-Identity	Pearson's r	-0.650	-0.439	—	
	p-value	<.001	<.001	—	
Social Media Engagement	Pearson's r	-0.857	-0.214	0.831	—
	p-value	<.001	<.001	<.001	—



The p-values are less than 0.05 for all the correlations established. There are both positive and negative correlations observed. Social media engagement is seen to be strongly correlated to both self-esteem and self-identity while weakly correlated to body image. This investigation is led further by establishing the three regression models with social media engagement as the common independent variable.

Model Fit Measures

Overall Model Test							
Model	R	R ²	Adjusted R ²	F	df1	df2	p
1	0.857	0.735	0.734	1086	1	392	<.001

Model Coefficients - Self-Esteem

Predictor	Estimate	SE	t	p
Intercept	4.356	0.0415	105.0	<.001
Social Media Engagement	-0.471	0.0143	-33.0	<.001

The first model includes self-esteem as the dependent variable and it shows the model to be statistically significant with a p-value of less than 0.05. The adjusted R2 here stands at 0.734 showing a 73.4% variance in self-esteem with one unit change in social media engagement levels. Moving on to the model coefficients, it is evident from the p-value shows that the impact of social media engagement on self-esteem. The estimate however shows that the impact caused is negative in nature. This reflects on the fact that with increase in social media engagement, there is a chance of reducing the self-esteem levels of the elderly further.

Model Fit Measures

Overall Model Test							
Model	R	R ²	Adjusted R ²	F	df1	df2	p
1	0.214	0.0456	0.0432	18.7	1	392	<.001

Model Coefficients - Body Image

Predictor	Estimate	SE	t	p
Intercept	3.485	0.0908	38.38	<.001
Social Media Engagement	-0.135	0.0313	-4.33	<.001

The second model consists of body image as the dependent variable. The analysis shows the significant nature of the regression model. The adjusted R2 in this model however is significantly low. It stands at 0.0432 representing only 4.32% change in body image perception based on social media engagement. This impact, although low, is statistically significant. The estimate reveals the negative impact of social media engagement on body image perception as well.

Model Fit Measures

Overall Model Test							
Model	R	R ²	Adjusted R ²	F	df1	df2	p
1	0.831	0.691	0.690	877	1	392	<.001

Model Coefficients - Self-Identity

Predictor	Estimate	SE	t	p
Intercept	2.182	0.0458	47.6	<.001
Social Media Engagement	0.467	0.0158	29.6	<.001

The third model considers self-identity as the dependent variable. Here, the regression model is statistically significant with p-value of less than 0.05. The adjusted R2 stands at 0.690 and it reveals the 69% change in self-identity with a unit change in social media engagement. The model coefficient however, shows that the estimate is positive in nature. This means that the impact caused by social media engagement on self-identity is positive in nature. The further use of social media can help the elderly users to make their level of self-identity stronger and better.

After the statistical analyses conducted, here are the final status of the hypotheses set for the purpose of the study.

Hypothesis	Status
H01: There is a significant impact of social media engagement level of the elderly on their self-esteem levels.	Accepted
H02: The social media engagement of the elderly has a significant impact on the body image developed by them.	Accepted
H03: There is a significant impact of the social media engagement of the elderly on the self-identity of the individuals.	Accepted

The three models have generated a different set of results showing the unique influence of each of the three factors. There can be several implications generated from this. The detailed discussion on the findings is provided in the next section.

Discussion

The use of social media has been poorly investigated among the elderly users using a set of appropriately constructed statistical methods. The analyses of the various psychological well-being aspects of the elderly population reveals interesting results about the impact of their social media engagement. The quantitative study initiates with designing a structured questionnaire through

secondary sources for primary data collection. It includes 394 primary responses from elderly users of social media. The conceptual model focused upon three aspects which are closely associated with the psychological well-being of such respondents and can be impacted by the daily use of social media. These factors include the self-esteem levels of the elderly, the body image issues and the self-identity they have about oneself. All the three factors have been investigated and confirmed using statistical methods for effectively measuring the group of respondents in the study. The mean score analyses of each of the components shows that the social media engagement levels of the elderly are at a medium level. They are not highly addicted to the use of social media and mostly confined themselves to the activities of information seeking from different blogs and posts rather than involving in sharing by themselves. This result is in concordance with the ones provided by Nam, Wu and Chiou who also mentions the moderate preference of social media usage by the elderly population [32,33]. Investigating the other three parameters, it is seen that the self-identity levels of these respondents are very high which indicates that this group of users have a good sense of perception about themselves. It is followed by the self-esteem levels and lowest agreement on the thoughts about body image. The correlation method also shows a significant association among the factors which comprise of both positive and negative relationships. The exact levels of association are determined in the three multiple linear regression studies and shows the impact of social media engagement on the three parameters. The impact of social media engagement is statistically significant in the three factors but the nature of it differs across the tree. The lowest level of influence caused by social media engagement is on body image. It shows that the difference in the opinion about the body image issues by the elderly is the minimum upon being exposed to social media content. The impact of social media engagement on the other two factors are found to be quite high. The influence on self-esteem is the highest but interestingly the impact is negative and the

influence on self-identity closely follows the previous one but is positive in nature. The results are in concordance with the ones provided by Forest and Wood, Hawi and Samaha, Steinfield, Ellison, and Lampe and show a close resemblance with the nature of relationships observed [34-36].

In order to effectively manage the use of social media usage among the elderly, the results of the study can be very beneficial. Firstly, the social media engagement levels show that the group of respondents are at a neutral level of using social media and are engaged in activities in a limited amount. There can be no harm observed with this amount of involvement in social media. However, there can be a high chance of this engagement level causing reduction in self-esteem levels of the elderly. Hence, the advocacy about the virtual scenario of social media must be communicated to these users. They must be made aware of the bogus and irrelevant circulation of information in these platforms in order to refrain them from getting affected in their self-esteem levels. There can be a positive impact on the self-identity level as well. To draw a perfect balance between the two, the promotion of informed use of social media by the elderly users would be the maximum beneficial.

Conclusion

The use of social media can be a medium of entertainment and connectivity for the elderly generation who are likely to undergo a transformation Alfie is in that age. The study here reflects how social media can act as a way of increasing their self-perception but can also lower their self-esteem. This indicates that a balanced way of using social media by this group of users can benefit them in the future. It can help them to achieve the required information and communication area while cognitively in calculating dosing formation which are genuine and relevant. The support of the family can help the elderly to effectively use social media and drive the maximum benefit out of it.

The future course of study can understand the detailed Impact of social media engagement on self-identity development of elderly using qualitative methods. Longitudinal studies undertaking experimentation on the group of respondents can also generate intricate details about the impact caused. Moreover, comparative studies across different age groups can be effective in highlighting the role of social media engagement in the situation.

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