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An Analysis Of Income And Investment Patterns Of Health Care Workers In Muzaffarnagar District.

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Abstract
Ensuring the financial well-being of medical professionals is crucial for both their individual stability and the overall strength of the healthcare system. This study investigates the income and investing behaviors of healthcare workers in Muzaffarnagar, including doctors, nurses, lab technicians, and pharmacists. Employing a quantitative study methodology, we gathered data from 386 individuals via an internet-based questionnaire to examine the impact of income levels on various investment patterns and preferences. The results indicate strong association between yearly income and factors such as annual investments, investment priorities, risk return choices, projected returns, investment expertise, and monitoring of investment performance.These associations exhibit differences among different job categories. The findings emphasize the influence of income on investment decisions, suggesting that higher income levels are generally linked to greater investment engagement. These insights can inform targeted measures aimed at enhancing the financial resilience and general welfare of medical practitioners.

INTRODUCTION:
The financial welfare of medical professionals is crucial, not just for their personal satisfaction and stability, but also for the maintenance of a robust healthcare system. Examining the income and investment trends of medical professionals can provide useful insights into their financial behaviors and decision-making processes. This study aims to analyze the income and investment behaviors of healthcare professionals in Muzaffarnagar.

Income and Investment:
Income is the monetary resources obtained by an individual or organization over a specific period, usually quantified in terms of money that can be utilized for consumption or savings. The conceptual definition of income is complex and might vary among different occupations. For instance, an individual's economic earnings may differ from their income. (1).
Investment is the allocation of resources, usually financial, into assets like stocks, bonds, real estate, or businesses, with the goal of generating income or profit. Investing involves a meticulous evaluation of potential risks compared to anticipated benefits, with the aim of growing wealth over a specific timeframe by raising the value of capital or earnings. (2)

Health care workers:
A medical professional is an individual who is employed in the healthcare sector and possesses the necessary qualifications and licensure to provide medical care and assistance to patients. This broad category includes professionals employed in hospitals, clinics, nursing homes, and other healthcare institutions, including physicians, nurses, pharmacists, technicians, therapists, and support personnel. Health practitioners maintain human health by applying the principles and methods of evidence-based medicine and empathy. Health professionals are involved in the assessment, diagnosis, treatment, and prevention of human illness, injury, and other physical and mental impairments, according to the needs of the communities they serve. They offer counsel and execute strategies to prevent and treat illnesses, while also promoting general health, with the ultimate goal of meeting the health needs and expectations of individuals and populations, and improving population health outcomes. (3)

Factors affecting the income of Health care workers:
Several influential factors impact the income patterns of medical practitioners. Initially, medical students possess elevated anticipations for their education to equip them with the essential proficiencies required to become proficient physicians on a global scale (4). Furthermore, they articulate a strong inclination to

pursue employment opportunities in both the public and private domains with the aim of enhancing their financial remuneration. Furthermore, there is a requirement for maintaining financial stability. A study has revealed that the concept of wage includes not only financial compensation, but also non-financial factors such as the working conditions and opportunities for personal and professional development (5). Furthermore, the importance of entrustable professional activities in medical education is highlighted (6). A study suggests that a significant level of compensation is required for medical professionals to attract and keep highly qualified individuals, ensure availability of healthcare services, and support ongoing professional development. Competitive compensation can bolster job satisfaction, enthusiasm, and professional sense of self among healthcare professionals, benefiting both the caregivers themselves and the patients they serve.

Factors affecting the investment of Health care workers:

People's perceptions towards various investment options or instruments are influenced by sociological and psychological variables, which subsequently impact their investment behavior. Sociological factors, such as cultural background, social status, and reference groups, have a significant impact on people's perceptions and beliefs toward investments (7). Moreover, the participation in small groups such as family units, religious institutions, or social networks also influences the conduct of investors (8). Investment prospects are typically influenced by attitudes, beliefs, and personality traits, which are formed by previous experiences and interactions within reference groups (9). The impact of informal human guidance among tightly-knit groups on investment decisions is more significant than that of mass media advertising (10). A study reveals the investment preferences of the employed individuals in Namakkal Taluk, Tamil Nadu. The study revealed that certain factors, such as age, educational level, and knowledge, have a substantial impact. (11)

Research gap:

Examining the income and investment behaviours of medical professionals is an important area of research that has not been adequately explored in the field of financial decision-making. Further research is required to fully understand the educational and catalytic effects of these activities on the income and investment patterns and behaviors of medical professionals (6). To fill this gap, Research can offer significant perspectives on the distinct financial obstacles and possibilities that medical professionals encounter. This, in turn, can aid in the creation of focused interventions to improve their financial strength and overall welfare.

Objective:

1. To find the association between income and investment pattern of Health care workers in Muzaffarnagar.
2. To compare the investment pattern across various income levels of Health care workers in Muzaffarnagar.
3. To compare the income and investment pattern across various occupations of Health care workers in Muzaffarnagar.

Research Design:

This study used a quantitative research approach to investigate the income and investing behaviors of medical professionals in Muzaffarnagar. The research aims to understand the influence of different income levels on the investment habits and preferences of medical professionals, including doctors, nurses, lab technicians, and pharmacists.

Survey Questions:

The data were gathered using an online survey conducted using Google Forms. The survey included the following questions that were pertinent to the research goals: Profession, Annual income, Annual investment, What is more important to you? (Investment Priority), Preference of risk & return, Level of investment, Kind of Return Expect, and Monitoring the Performance of Investment Avenues.

Sampling Method

This study's sample for statistical analysis consists of 386 participants who are Health care workers in Muzaffarnagar. The convenience sample survey was circulated by professional networks, social media platforms, and medical institutions in Muzaffarnagar. We encouraged participants to distribute the survey link among their colleagues in order to enhance the response rate.

Limitations of the study

Some individuals were reluctant to reveal information on their income and investment decisions, as they deemed it to be a matter of personal nature. The limited sample size may not accurately reflect the entire population of Indian Health care workers, thereby rendering it unsuitable to draw a definitive conclusion.

Data Analysis:

1. To find the association between income and investment pattern of Health care workers in Muzaffarnagar:

Chi-square test: The Chi-square test is a statistical method applied to determine the presence of significant association between two category variables.

Table 1: Association between Annual income and Investment pattern of Health care workers.

		Annual Income				Total		p-value	
Investment pattern		Less than 2 lakhs	2-5 lakhs	5-8 lakhs	8 lakhs or more		Pearson Chi square Statistics		Cramer's V
Annual Investment	No investment	9	9	3	8	29	288.877	0.000	0.499462
	Less than 1 lakh	9	141	35	5	190			
	1-2 lakh	4	4	27	58	93			
	3-4 lakh	0	4	5	40	49			
	4 lakh or more	0	0	1	24	25			
Total		22	158	71	135	386			
Investment Priority	Safety / Capital preservation	16	47	42	91	196	111.723	0.000	0.310612
	Moderate capital appreciation	0	6	3	13	22			
	Aggressive growth	3	1	3	9	16			
	Liquidity	1	100	18	15	134			
	Preservation of purchasing power	2	4	5	7	18			
Total		22	158	71	135	386			

Preference of risk & return	Lower return with lower risk	6	17	14	43	80	34.789	0.000	0.212283
	Moderate return with moderate risk	11	134	48	78	271			
	Higher return with higher risk	5	7	9	14	35			
Total		22	158	71	135	386			
Knowledge of Investment	Non Existent	2	14	6	6	28	22.271	0.008058	0.138681
	Fair	7	36	18	58	119			
	Good	12	75	36	59	182			
	Excellent	1	33	11	12	57			
Total		22	158	71	135	386			
Kind of Return Expect	5%-10%	11	134	38	29	212	142.911	0.000	0.3513
	11%-15%	2	16	24	62	104			
	16%-20%	2	3	4	29	38			
	Greater than 20%	7	5	5	15	32			
Total		22	158	71	135	386			
Monitoring the Performance of Investment Avenues	Daily	9	13	5	8	35	40.324	0.000	0.228545
	Weekly	2	3	7	15	27			
	Monthly	11	142	59	112	324			
Total		22	158	71	135	386			

Table 2: Association between Annual Income and Annual Investment among different occupations of Health care workers.

Annual Income		Investment Pattern					
Occupation		Annual Investment	Investment Priority	Preference of risk and return	Knowledge of investment	Kind of return expect	Monitoring the performance of investment avenues.
Doctor	Chi-square	50.356	9.087	8.722	31.237	16.968	10.212
	P-value	0.000	0.695	0.19	0.000	0.049	0.116
Nurse	Chi-square	70.447	46.188	7.839	16.231	32.781	11.16
	P-value	0.000	0.000	0.25	0.062	0.000	0.084
Lab technician	Chi-square	80.181	61.991	21.107	3.796	29.57	42.596
	P-value	0.000	0.000	0.002	0.924	0.000	0.000
Pharmacist	Chi-square	63.567	63.335	7.71	11.224	57.757	28.201
	P-value	0.000	0.000	0.26	0.261	0.000	0.000

Interpretation:

In the Chi-square test if the p value is greater than 0.05, there is no significant association between the two attributes. But if the p value is less than 0.05, there is a significant association between the two attributes, and the strength of the association is given by Cramer's V value. The range of Cramer's V value indicates the strength of the association as follows: i. Negligible association (0.0 – 0.2), ii. Week association (0.2 – 0.4), iii. Moderate association (0.4 – 0.6), iv. Strong association (0.6 – 0.8), and v. Very strong association (0.8 – 1.0).

There is a significant association between Annual Investment and Annual Income. The strength of association between them is moderate. This association holds true for all medical occupation groups.

There is a significant association between Investment Priority and Annual Income. The strength of association between them is weak. This association holds true for Nurses, Lab technicians and Pharmacists. But for Doctors there is no significant association between Investment Priority and Annual.

There is a significant association between Preference for risk and return and Annual income.

The strength of association between them is weak. This association holds true for only Lab technicians. For occupation groups- Doctors, Nurses and Pharmacists there is no significant association between Preference of risk and return, and Annual Income.

There is a significant association between Knowledge of investment and Annual income. The strength of association between them is negligible. This association holds true for only Doctors.For occupation groups- Nurses, Lab technicians, and Pharmacists there is no significant association between Knowledge of investment, and Annual Income.

There is a significant association between Kind of expected return and Annual income. The strength of association between them is weak. This association holds true for all medical occupation groups.

There is a significant association between Monitoring of investment performance and Annual income.

The strength of association between them is weak. This association holds true for Lab technicians and Pharmacists. For occupation groups- Doctors and Nurses, there is no significant association between Monitoring of investment performance and Annual Income.

Overall, we can conclude that Annual Investment, Investment Priority, Preference of risk and return, Knowledge of investment, Kind of return expect, and Monitoring the performance of investment avenues are significantly associated with the Annual Income.

2. To compare the investment pattern across various income levels of Health care workers in Muzaffarnagar:

Kruskal-Wallis test: The Kruskal-Wallis test is a non-parametric statistical test applied to test for the presence of statistically significant variations among the medians of three or more independent groups. It is employed when the conditions of one-way ANOVA, such as normality and homogeneity of variance, are not satisfied.

Table 3: Kruskal-Wallis test to compare the investment pattern across various income levels.

	Annual Income	N	Mean Rank	Kruskal-Wallis H	p-value
Annual Investment	Less than 2 lakhs	22	105.43	188.078	0.000
	2-5 lakhs	158	127.22		
	5-8 lakhs	71	192.16		
	8 lakhs or more	135	286.12		
	Total	386			
Knowledge of Investment	Less than 2 lakhs	22	175.68	9.144492271	0.0274
	2-5 lakhs	158	209.32		
	5-8 lakhs	71	199.93		
	8 lakhs or more	135	174.51		
	Total	386			
Kind of Return Expect	Less than 2 lakhs	22	225.68	110.09459	0.000
	2-5 lakhs	158	135.20		
	5-8 lakhs	71	191.40		
	8 lakhs or more	135	257.59		
	Total	386			

Monitoring the Performance of Investment Avenues	Less than 2 lakhs	22	124.07	24.48086142	0.000
	2-5 lakhs	158	204.18		
	5-8 lakhs	71	192.65		
	8 lakhs or more	135	192.76		
	Total	386			

Table 4: Kruskal-Wallis test to compare the investment pattern across various income levels among different occupations of Health care workers.

Occupation		Annual Investment	Knowledge of Investment	Kind of Return Expect	Monitoring the Performance of Investment Avenues
Doctor	Kruskal-Wallis H	17.640	6.964	11.623	3.008
	p-value	0.001	0.073	0.009	0.390
Nurse	Kruskal-Wallis H	46.528	6.289	12.515	5.969
	p-value	0.000	0.098	0.006	0.113
Lab technician	Kruskal-Wallis H	51.348	2.352	24.816	34.298
	p-value	0.000	0.503	0.000	0.000
Pharmacist	Kruskal-Wallis H	38.575	3.384	29.125	12.245
	p-value	0.000	0.336	0.000	0.007

Interpretation:

In Kruskal-Wallis test, if the p value is greater than 0.05, there is no significant difference among the various income levels regarding the investment pattern. However, if the p value is less than 0.05, there is a significant difference. The income level having higher mean rank corresponds to a higher score in the investment pattern.

There is a statistically significant difference in annual investment across various annual income categories with higher income groups investing more This difference in investment was observed across all medical occupation groups.

There is a statistically significant difference in knowledge of investment across various annual income categories, with individuals in the 2-5 lakhs and 5-8 lakhs income groups showing greater knowledge of investment. But, this difference in knowledge is not observed when analyzing medical occupation groups separately.

There is a statistically significant difference in the kind of return expected across various annual income categories. Individuals in the income group of 8 lakhs or more expect the highest returns, followed by those in the income groups of less than 2 lakhs, 5 to 8 lakhs and 2 to 5 lakhs. This difference in kind of return expectation was observed across all medical occupation groups.

There is a statistically significant difference in the frequency of monitoring the performance of investment avenues across various annual income categories. Individuals in the income group of 2 to 5 lakhs monitored most frequently This was followed by those in the income groups of 5 to 8 lakhs and 8 lakhs or more, who monitored their investments with equal frequency. Individuals in the income group of less than 2 lakhs monitored their investments the least. This difference in monitoring practices was observed among Lab technicians and Pharmacists. But, no significant difference in monitoring was found between Doctors and Nurses.

3. To compare the income and investment pattern across various Health care workers occupations in Muzaffarnagar:

Table 5: Kruskal-Wallis test to compare the income and investment pattern across various Health care workers occupations in Muzaffarnagar.

	Occupation	N	Mean Rank	Kruskal Wallis H	p-value
Annual Income	Doctor	117	282.72	131.267	0.000
	Nurse	95	172.38		
	Lab technician	95	128.20		
	Pharmacist	79	165.28		
	Total	386		87.563	0.000
Annual Investment	Doctor	117	266.77		
	Nurse	95	174.31		
	Lab technician	95	145.72		
	Pharmacist	79	165.52		
	Total	386			
Preference of risk & return	Doctor	117	169.62	18.498	0.000
	Nurse	95	215.01		
	Lab technician	95	210.65		
	Pharmacist	79	182.39		
	Total	386			

Knowledge of Investment	Doctor	117	177.58	7.075	0.000
	Nurse	95	198.10		
	Lab technician	95	214.17		
	Pharmacist	79	186.69		
	Total	386			
Kind of Return Expect	Doctor	117	244.01	65.086	0.000
	Nurse	95	202.03		
	Lab technician	95	133.69		
	Pharmacist	79	180.36		
	Total	386			
Monitoring the Performance of	Doctor	117	183.56	5.278	0.153
	Nurse	95	189.51		
	Lab technician	95	202.22		
Investment Avenues	Pharmacist	79	202.54		
	Total	386			

Interpretation:

Here, if the Kruskal-Wallis p value is greater than 0.05, there is no significant difference among the different medical occupation groups regarding the investment pattern. However, if the p value is less than 0.05, there is a significant difference. The occupation group having higher mean rank corresponds to a higher score in the investment pattern.

The analysis reveals a statistically significant difference in annual income among different occupation groups of Healthcare workers. Doctors have the highest income followed by Nurses, Pharmacists, and Lab technicians.

There is a statistically significant difference in annual investment among different occupation groups of Healthcare workers. Doctors invest the most, followed by Nurses and Pharmacists, who show a similar pattern in their investment levels. Lab technicians invest the least.

Regarding the preference of risk & return, there is a statistically significant difference in preference of risk & return among different occupation groups of Health care workers. Nurses and Lab technicians are more willing to accept higher risk to receive high return on their investment. In contrast, Pharmacists and Doctors tend to prefer moderate or low return with
corresponding moderate or low risk.

There is a statistically significant difference in knowledge of investment among different occupation groups of Healthcare workers. The Lab technicians possess the highest level of knowledge of investment,

while Doctors have the least. Nurses and Pharmacists have a moderate level of knowledge of investment. There is a statistically significant difference in the kind of return expected among various occupation groups of Health care workers. Among them Doctors have highest return expectations, followed by Nurses, Pharmacists, and Lab technicians.

Regarding monitoring the performance of investment avenues, there is no statistically significant difference in monitoring the performance of investment avenues among different occupation groups of Health care workers.

Findings

Association Between Annual Income and Investment Patterns:

• A significant association of moderate strength exists between annual income and investment among Health care workers in Muzaffarnagar. This association is consistent across all medical occupation groups.

• There is a significant association between investment priority and annual income. The strength of the association is weak, this relationship holds true for nurses, lab technicians, and pharmacists, but not for doctors.

• The finding shows a significant association between and return annual income and the preference for risk, with a weak strength of association. This association is significant only for lab technicians, while for doctors, nurses, and pharmacists, no significant association is found.

• A negligible but significant association is identified between annual income and knowledge of investment, applicable only to doctors. Other occupation groups (nurses, lab technicians, and pharmacists) show no significant association.

• There is a weak yet significant association between annual income and the kind of expected return, observed across all medical occupation groups.

• The association between annual income and monitoring investment performance is significant but weak. This association is significant for lab technicians and pharmacists but not for doctors and nurses.

Comparison of Investment Patterns Across Income Levels:

• The annual investment varies significantly across different income levels, with higher income level groups investing more. This pattern is observed in all medical occupation groups.

• The analysis reveals a significant difference in knowledge of investment across income levels, with higher knowledge observed in the 2 to 5 lakhs and 5 to 8 lakhs income groups. However, this difference does not hold when analyzing individual medical occupation groups.

• The expectation of returns differs significantly across income levels. The highest returns are expected by those earning 8 lakhs or more, followed by those in less than 2 lakhs, 5 to 8 lakhs, and 2 to 5 lakhs income level groups, respectively. This difference is the same for all medical occupation groups.

• A significant difference is found in monitoring the performance of investment avenues across different income levels. Individuals in the 2 to 5 lakhs income level group monitor most frequently, followed by those in the 5 to 8 lakhs and 8 lakhs or more groups, who monitor with equal pattern. Those earning less than 2 lakhs monitor the least. These differences are primarily observed among lab technicians and pharmacists, with no significant differences for doctors and nurses.

Comparison of Income and Investment Patterns Across Occupation Groups:

• The annual income varies significantly among the different occupation groups, with doctors earning the most, followed by nurses, pharmacists, and lab technicians. • Significant differences in annual investment are observed across occupation groups, with doctors investing the most, followed by nurses and pharmacists, who have similar investment levels. Lab technicians invest the least.

• There exists a significant difference in the preference for risk and return among occupation groups. Nurses and lab technicians are more willing to take higher risks for higher returns, while pharmacists and doctors prefer moderate to low risk with corresponding moderate to low returns.

• The knowledge of investment significantly varies among medical occupation groups. Lab technicians possess the highest knowledge, followed by nurses and pharmacists, while doctors have the least.

• There is a significant difference in the expected return types across medical occupation groups. Doctors expect the highest returns, followed by nurses, pharmacists, and lab technicians.

• There is no significant difference in monitoring the investment performance across different medical occupation groups.

CONCLUSION

Annual Income and Investment Patterns:

There is a significant association between annual income and various investment behaviours among Health care workers in Muzaffarnagar. Higher income is generally associated with greater annual investment, more knowledge of investment, and more frequently monitoring the performance of investment avenues.

Occupation-Specific Insights:

Doctors have the highest annual income and invest the most, but they exhibit the least knowledge of investment. Nurses and lab technicians show a higher preference for risk in return for potentially higher rewards, while pharmacists and doctors tend to prefer moderate or low risk investments. The lab technicians possess the highest level of knowledge of investment, while Doctors have the least. Doctors have highest return expectations and Lab technicians have the least. But no variation in monitoring the performance of investment avenues among different occupation groups of Healthcare workers.

Income Level Impact:

Differences in investment behaviour are significant across various income levels, with higher income groups investing more and expecting higher returns. The 2-5 lakhs and 5-8 lakhs income level groups demonstrate greater knowledge of investment, while those earning less than 2 lakhs tend to monitor their investments the least.

Need for Financial Planning:

The study highlights the need for targeted financial education and planning, mainly tailored to the varied income levels and occupational categories within the medical profession. This can help Health care workers make more up-to-date investment decisions aligned with their income and risk preferences.

REFERENCES:

1. McCaffery, E. (2012). The Oxford Introductions to U.S. Law: Income Tax Law 1st Edition. Oxford University Presshttps://books.google.co.in/books?hl=en&lr=&id=t19gDwAAQBAJ&oi=fnd&pg =PP1&dq=McCaffery,+Edward+(2012).+The+Oxford+Introductions+to+U.S.+Law: +Income+Tax+Law+1st+Edition.+Oxford+University+Press&ots=QW144NVDDO& sig=a1Ovcyy7HbRe862srO8JOTwoS3U&redir_esc=y#v=onepage&q&f=false.

2. Negotiating Group on the Multilateral Agreement on Investment (MAI).(1996, February 29). Definition of Investor and Investment. Organisation for Economic Co operation and Development. https://www.oecd.org/daf/mai/pdf/dg2/dg2961e.pdf.

3. Gupta N, et al. (2011 September 16). Human resources for maternal, newborn and child health: from measurement and planning to performance for improved health outcomes. Human Resources for Health. https://pubmed.ncbi.nlm.nih.gov/21702913/.

4. Fronteira N., Rodrigues A., et al.(2011). Realities and professional expectations of medical students attending Guinea Bissau's medical school in 2007 school year. Pubmed. https://pubmed.ncbi.nlm.nih.gov/22011598/.

5. Yao C., Xu H. et al. (2018, January). Research on the Reform of Hospital Salary System Based on Problem Orientation. Researchgate. https://www.researchgate.net/publication/329959976_Research_on_the_Reform_of_ Hospital_Salary_System_Based_on_Problem_Orientation.

6. Meyer, Eric G., Chen, H. C.,(2019, July). Scoping Review of Entrustable Professional Activities in Undergraduate Medical Education. Academic Medicine. https://journals.lww.com/academicmedicine/FullText/2019/07000/Scoping_Review_of_Entrustable_Professional.40.aspx.

7. James H. M., John F. M. (1973).More on social class. Income as correlates of buying behaviour; Journal of Marketing. JSTOR. https://www.jstor.org/stable/1250057. **8.** William D. Wells (1975).''Psychographics: A critical review '' Journal of marketing research.JSTOR. https://www.jstor.org/stable/3150443.

9. David Krech, Richard S. Crutch field, et al. (1962): '' individual in society'' New York: Mc GrawHill Book company. Internet aechine https://archive.org/details/in.ernet.dli.2015.199566/page/n7/mode/2up. **10.** Elihu Katz and Paul Lazarfld, (1955). personal influence. Research gate. .https://researchgate.net/publication/30521202_The_Influence_of_Personal_Influence _on_the_Study_of_Audiences.

11. Palanivelu V.R., ChandraKumar K., (2013). A Study On Preffered Investment Avenue Among Salaried People With Reference To Namakkal Taluk Tamil Nadu, India, SIES Journal of Management 7(2) 1-12. https://www.caal inteduorg.com/ibea2013/ejournal/089~VR_Palanivelu&K_Chandrakumar~ A_Study_on_Preferred.pdf.