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Financial literacy and its correlates among healthcare professionals of India: An ignored educational need

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Abstract:

BACKGROUND: Financial literacy is a person's capability to manage their own monetary matters. There was no information available on financial literacy status of healthcare professionals (HCPs) of India. So, the current research was formulated to assess the financial literacy status and its correlates among HCPs of India.

MATERIALS AND METHODS: It was an observational study, cross-sectionally designed, conducted among 524 HCPs of India using a structured Google form during July 2020. For data analysis, SPSS (version 22) was used.

RESULTS: Among the study participants, 68.3% were found to be financially literate. Among the various subdomains of the total financial literacy, knowledge regarding general domain was observed to be the best (69.3%) followed by savings (63.7%) and investment (58.0%) domains, respectively. The total financial literacy score was found to be positively correlated with higher age [spearman rho correlation co-efficient (ρ) = 0.25; P =< 0.01], qualification [(medical postgraduate) (ρ = 0.16; P = < 0.01); (medical super speciality) ($\rho = 0.14$; P = < 0.01)], and annual family income ($\rho = 0.29$; P = < 0.01). Moreover, males ($\rho = 0.23$; P = < 0.01)], currently married ($\rho = 0.19$; P = < 0.01), and surgeons ($\rho = 0.12$; P = < 0.01) were found to be more financially literate compared with others. Positive financial attitude ($\rho = 0.26$; P = < 0.01) and regular maintenance of financial record ($\rho = 0.21$; P = < 0.01) were the other enabling factors of financial literacy observed in the study.

CONCLUSIONS: Financial literacy was found to be quite low in the surveyed HCPs as every third study participant were found to be deficient in knowledge regarding one or more financial attributes. Incorporation of finance management in curriculum of the healthcare allied courses and repeated sensitization of the graduated HCPs are warranted to enable them to take effective financial decisions to meet their personal and organizational financial goals.

Keywords:

Education, financial management, health personnel, India, insurance, investments, literacy

Introduction

inancial literacy is the ability of an Γ individual to effectively manage financial matters, his/her own personal finance, budgeting, and investing through application of various financial skills.[1-3] Lack of financial skills to tackle financial-related issues is termed as financial illiteracy. Financial illiteracy may have several financial (bankruptcy, poor credit, etc.)

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and health (i.e., stress, anxiety, depression, burn out, and suicidal ideation) related consequences.[1,2,4,5] Low financial knowledge is also reported to be associated with sub-optimal financial outcomes in many areas (i.e., retirement planning, borrowing decisions, stock market participation, etc.).[3,6-10] A financially literate individual is also less susceptible to financial frauds.[11]

Financial principles and personal finance management are barely part of medical or nursing curriculum of any country, although

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several prior studies advocated for their inclusion. [12-17] Prevailing literature suggests that only about 25% to 60% of the Healthcare professionals (HCPs) are financially literate which is quite bothering. [13,18,19] Financial literacy was reported to be even lower in allied HCPs. [17] Prior studies suggested age, sex, marital status, ethnicity, educational level, cadre title, income, financial attitude, and so on, as significant determinants of one's financial literacy status. [13,16-19]

HCPs claim handsome salaries from very beginning of their career. [17] Thus, good financial knowledge among them is warranted to invest wisely to meet their future monetary needs and protect themselves from financial frauds. Importance of financial literacy on overall wellbeing of HCPs is indisputable. [4,20] Despite our exhaustive search, we could not retrieve any prior data on financial literacy status of HCPs of India. Therefore, the present online survey was designed to elicit financial literacy and its various correlates among HCPs of India. The findings of the study will bring about better understanding on this issue and throw light on grey areas needing utmost attention.

Materials and Methods

Study design and setting

It was an observational study, cross-sectionally designed online survey which was conducted during July 2020 among HCPs of India.

Study participants and sampling

Any HCP (i.e., doctors, nurses, and interns), residing in India, either of modern or alternative medicine were the potential study participants. In absence of any prior Indian study in this regard, assuming that at least 60% HCPs to be financially literate [as reported by a prior Turkish study by Altan *et al.*,^[18]] 5% absolute precision, and 95% confidence, the minimum sample size for the study was calculated to be 369. Statulator (an online sample size calculator) was used for sample size calculation.^[21] In total, 524 HCPs participated in our survey.

Data collection tool and technique

Google form (an online self-administered data collection tool by "Google LLC") was used for data collection. Organization for Economic Co-operation and Development financial literacy questionnaire and some prior studies in this regard were referred for tool development. [1,15,22,23] At first, the questionnaire was pretested in 30 residents/faculties who were not included in the final sample. After the necessary modifications, the tool was finalized and used for the study. The final study tool composed of background characteristics of the study subjects (age in years, gender, state of origin, marital status, speciality, and years of experience), 23 financial

literacy related knowledge items (5 general, 5 savings, 6 insurance, and 7 investment), their financial record keeping practices, financial attitude (4 items), total yearly family income, and prior participation in any financial literacy course. The knowledge (Cronbach's Alpha. 753) and attitude items (Cronbach's Alpha. 774) used in the study have shown good internal consistency. The survey Google form began with a short description regarding the purpose of the study, followed by the question "do you voluntarily agree to participate in the study" with options agree/disagree. The rest items of the questionnaire were only be administered if the participant agreed to participate in the study. If the participant disagreed to participate, the survey ended there itself. For data collection, email and WhatsApp invitation was be sent to the potential study participants along with the link of the Google form. The recipients of email or WhatsApp invitations to participate in the study were requested to forward the study Google form link to their known HCPs. In this way, the study was carried forward using snowball sampling. After submission of their responses, the study participants were provided with feedback message which included their total financial literacy score along with a link of a free online interactive financial literacy course named "DhanGyan."[24]

Some operational definitions used for the study

HCPs: In this study, we considered doctors, nurses, and interns of modern medicine, dental and Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy (AYUSH) as HCPs.

Financial literacy scores: For each correct response to a financial literacy-related knowledge item, a participant received "1" score. Incorrect responses received "0" score. To derive total financial literacy score of the individual domains (general, savings, insurance, and investment), the received scores of the items of those particular domains were summed up. Finally, scores of all the individual domains of financial literacy (general, savings, insurance, and investment) were added to derive total financial literacy score. [1,15,22,23]

Adequate Financial Literacy: Those who have scored more than equal to median attainable financial literacy score in total (\geq 12) and its individual domains [general (\geq 3), savings (\geq 3), insurance (\geq 4), and investment (\geq 4)] were considered as having adequate total and domain wise financial literacy, respectively.

Financial attitude score: Those who considered maintenance of adequate financial records, adequate insurance coverage, spending less than income, investing regularly for future needs as "very important" and "important" received "2" and "1" score, respectively, for each. Those who opined for neutral ("not sure") and negative ("not so

important," "not important at all") for these items were awarded "0" score for each. The total financial attitude score was derived by adding scores of all these 4 items.

Positive Financial Attitude: Those who have scored more than equal to median attainable attitude score (≥ 4) were considered as having positive financial attitude.

Statistical analysis

Data were analyzed using IBM SPSS (Chicago, USA) (version 22). At first, bivariate analysis was performed using the Chi-square test to find out significant attributes of financial literacy and its various domains among the study participants. This was followed by Spearman rho correlation to find out the strength of the association of financial literacy and its various domains with background characteristics of the study participants. The strength of association was assessed by Spearman rho correlation coefficient (ρ). The minimum acceptable confidence level was $\alpha = 0.95$ for all statistics, and the maximum acceptable significance level was P < 0.05. In addition, QGIS (version 2.18.16) was used to generate map depictions in the manuscript.

Ethical consideration

Ethical clearance of the Institutional Ethics Committee (IEC) of All India Institute of Medical Sciences (AIIMS), Patna (Ref. No. - AIIMS/Pat/IEC/2020/445), was taken before conducting the research. Informed online consent using the Google form of each of the study participant was taken before the survey questionnaire administration. We took all possible precautions to maintain anonymity of each study participant.

Results

The majority of the responses were received from the state of Bihar (17.7%), followed by West Bengal (12.5%) and Kerala (12.2%). The state or union territory wise distribution of responses received is being depicted in Figure 1. Considering region, most of the responses were received from eastern region (36.4%), followed by northern (27.3%) and southern (24.8%) region, whereas from north-eastern region, only 2.2% of the responses were received.

Among the study participants, 68.3% were found to be financially literate. The financial literacy was highest in Odisha (94.4%), followed by Uttarakhand (92.3%) and Madhya Pradesh (87.5%). On the other hand, participants who belonged to Delhi (34.8%) and Andhra Pradesh (52.9%) have shown lowest financial literacy rate. Considering various domains of the financial literacy score, general financial literacy was observed to be the highest (69.3%), followed by savings (63.7%), investment (58.0%), and insurance (56.1%) related financial literacy [Figure 2].

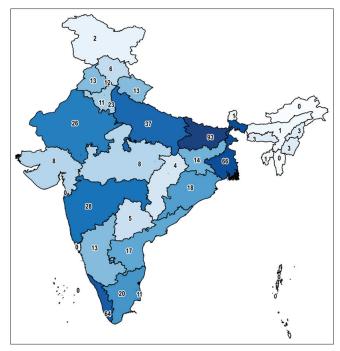


Figure 1: Map of India showing distribution of responses received as per their native states or union territories of the study subjects (n = 524)

Most (43.7%) of the study subjects belonged to 30 to 39 years age group with mean age of 35.4 years [standard deviation (SD): 9.7 years; range: 22-65 years]. About two-third of the study subjects were male (65.6%) and married (67.6%). Most of the study subjects (47.5%) were medical postgraduate or diploma holder with mean years of experience of 8.2 years (range: 0-38 years). Considering branch, about half of the study subjects belonged to medicinal branch (51.5%), while 14.9% and 7.4% of them were nurses and medical intern, respectively. Despite maintenance of financial record being important to majority of them (93.7%), only 79.6% actually used to maintain it. Only few of them (5.0%) had ever done any financial literacy course. In univariate analysis, age, gender, region, marital status, qualification, branch, experience, financial record keeping status, positive financial attitude, and yearly family income were significant attributes of total adequate financial literacy and its various attributes [Table 1].

The total financial literacy score was found to be positively correlated with higher age ($\rho=0.25$; P=<0.01), qualification [(medical postgraduate) ($\rho=0.16$; P=<0.01); (medical super specialty) ($\rho=0.14$; P=<0.01)], experience ($\rho=0.23$; P=<0.01), and annual family income ($\rho=0.29$; P=<0.01). Moreover, males ($\rho=0.23$; P=<0.01), currently married ($\rho=0.19$; P=<0.01), and surgeons ($\rho=0.12$; P=<0.01) were found to be more financially literate compared with others. Although the same could not be said for the nurses ($\rho=-0.22$; P=<0.01) and participants from north-eastern region of the country ($\rho=-0.09$; P=<0.05). Positive financial attitude ($\rho=-0.09$) and positive financial attitude ($\rho=-0.09$).

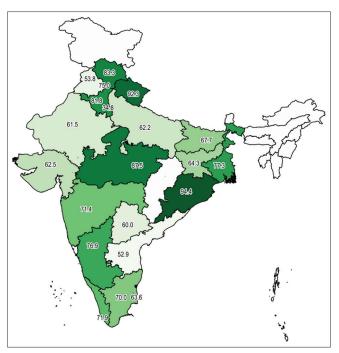


Figure 2: Map of India showing proportion of study subjects with adequate financial literacy as per their native states or union territories (n = 524). NB: In the map, financial literacy of the study participants of the states or union territories from which at least five responses were received are depicted

= 0.26; P =< 0.01) and regular maintenance of financial record (ρ = 0.21; P =< 0.01) were the other enabling factors of financial literacy observed in the study [Table 2].

Discussion

This was the first study to elicit financial literacy among HCPs of India. The study throws much needed light on scarce literature available on the issue, especially in Indian context. In the present online survey, two in every three HCPs surveyed were found to be financially literate. Among the subdomains of financial literacy, insurance was found to be the lowest followed by investment, savings, and general. Age, gender, region, marital status, qualification, branch, years of experience, financial record keeping status, positive financial attitude, and yearly family income were found to be significant correlates of financial literacy status.

We found that 68.3% of the HCPs in the present study to be financially literate. This was more considering findings of Mulligan $et\ al.^{[17]}$ (25.0%), Ahmad $et\ al.^{[13]}$ (52.0%), and Altan $et\ al.^{[18]}$ (60.0%). HCPs in the present study had least financial literacy in insurance domain (56.1%). This was unlike observations of Altan $et\ al.^{[18]}$ where the healthcare staffs more successfully answered insurance- and retirement-related items (78.0%), while least knowledge was observed for investment-related items (37.0%). The variability of observations may be attributable to difference in the sample population (social, cultural,

and economic differences) and use of different financial literacy assessment tools.

In the present study, with the increase in age, financial literacy of the study participants increased. This was similar with the findings of Mulligan et al.[17] With increase in age, the income of HCPs also increases which evokes need of using various financial instruments for savings and investment. That might be because we also found significant correlation between years of experience and yearly family income with financial literacy status of HCPs. Males were more likely to be financially literate in the present study. This was in concordance with the findings of an US and a Turkish study by Jayakumar et al.[15] and Altan et al., [18] respectively. Although, this association was not observed in the study conducted by Ibrahim et al.[19] In the study conducted by Ibrahim et al., [19] there was almost equal representation of both the sexes (48% females), while our study sample was male predominated (65.6%). This might be the reason of differences in the findings. In the present study, those who have resided in north-eastern region had lower total financial literacy, whereas residents of eastern region had more savings and insurance-related financial literacy compared with residents of other regions. Although, the found strength of association between region and financial literacy was quite low ($\rho = 0.09$). Moreover, the found difference may be due to variability of response received as per region of residence (under participation from north-eastern and over participation from eastern region). In the present survey, we found that those who were currently married had higher financial literacy compared with others, while it was vice versa for unmarried HCPs. Similar observations were noted in the study conducted by Mulligan et al.[17] This might be because with marriage, financial responsibility and future planning need of a person increases. This might compel him/her to acquire various financial skills to use various financial instruments. We found qualification and branch as significant influencers of financial literacy of the study participants. Overall, nursing personnel had lower financial literacy compared with doctors. Thus, financial literacy must be inducted in both medical and nursing curriculum. This was in concordance with the findings of Altan et al., [18] which reported educational level and cadre title as significant determinant of financial literacy. In the present study, financial record keeping status and a positive financial attitude emerged as significant correlates of financial literacy among the study participants. A prior Indian study by Rai et al.[25] reported strong association between financial behavior and financial attitude with financial literacy level among 394 working women in Delhi which was in line with our observations. We observed significant correlation between yearly family income and financial literacy. A Brazilian study by Potrich et al. [26] reported similar observations.

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Table 1: Distribution of the study subjects as per their background characteristics and financial literacy status (*n*=524)

Variables	N (%)	Adequate financial literacy: (Yes); N (%)/P*					
		General Savings Insurance Investment					
Age in years:							
<33 (median)	230 (43.9)	143 (62.2)	115 (50.0)	91 (39.6)	118 (51.3)	122 (53.0)	
≥33	294 (56.1)	220 (74.8)	219 (74.5)	203 (69.0)	186 (63.3)	236 (80.3)	
		0.002	0.000	0.000	0.006	0.000	
Sex:							
Male	344 (65.6)	252 (73.3)	245 (71.2)	218 (63.4)	215 (62.5)	262 (76.2)	
Female	180 (34.4)	111 (61.7)	89 (49.4)	76 (42.2)	89 (49.4)	96 (53.3)	
		0.006	0.000	0.000	0.004	0.000	
Region:							
Northern	143 (27.3)	90 (62.9)	85 (59.4)	78 (54.5)	81 (56.6)	90 (62.9)	
Southern	130 (24.8)	87 (66.9)	78 (60.0)	64 (49.2)	74 (56.9)	89 (68.5)	
Eastern	191 (36.5)	141 (73.8)	133 (69.6)	118 (61.8)	119 (62.3)	140 (73.3)	
Western	48 (9.2)	38 (79.2)	30 (62.5)	29 (60.4)	25 (52.1)	34 (70.8)	
North-eastern	12 (12.3)	7 (58.3)	8 (66.7)	5 (41.7)	5 (41.7)	5 (41.7)	
		0.100	0.300	0.164	0.648	0.085	
Marital Status:							
Married	354 (67.6)	248 (70.1)	247 (69.8)	230 (65.0)	219 (61.9)	264 (74.6)	
Divorced/Separated	14 (2.7)	9 (64.3)	5 (35.7)	7 (50.0)	5 (35.7)	7 (50.0)	
Unmarried	156 (29.8)	106 (67.9)	82 (52.6)	57 (36.5)	80 (51.3)	87 (55.8)	
		0.821	0.000	0.000	0.019	0.000	
Qualification:							
Medical UG	139 (26.5)	92 (66.2)	79 (58.8)	49 (35.3)	74 (53.2)	81 (58.3)	
Medical PG/Diploma	249 (47.5)	188 (75.5)	182 (73.1)	161 (64.7)	161 (64.7)	190 (76.3)	
Medical Super speciality	31 (5.9)	28 (90.3)	28 (90.3)	25 (80.6)	20 (64.5)	29 (93.5)	
Nursing UG	59 (11.3)	23 (39.0)	18 (30.5)	28 (47.5)	23 (39.0)	22 (37.3)	
Nursing PG	19 (3.6)	10 (52.6)	7 (36.8)	10 (52.6)	11 (57.9)	12 (63.2)	
Others#	27 (5.2)	22 (81.5)	20 (74.1)	21 (77.8)	15 (55.6)	24 (88.9)	
		0.000	0.000	0.000	0.010	0.000	
Type of Branch:							
Medicinal	270 (51.5)	197 (73.0)	185 (68.5)	150 (55.6)	157 (58.1)	191 (70.7)	
Surgical	110 (21.0)	81 (73.6)	84 (76.4)	71 (64.5)	79 (71.8)	87 (79.1)	
Medical Intern	39 (7.4)	30 (76.9)	20 (51.3)	14 (35.9)	19 (48.7)	22 (56.4)	
Nursing	78 (14.9)	33 (42.3)	25 (32.1)	38 (48.7)	34 (43.6)	34 (43.6)	
Others#	27 (5.2)	22 (81.5)	20 (74.1)	21 (77.8)	15 (55.6)	24 (88.9)	
		0.000	0.000	0.002	0.002	0.000	
Years of Experience:							
<5 (median)	230 (43.9)	147 (63.9)	126 (54.8)	105 (45.7)	118 (51.3)	136 (59.1)	
≥5	294 (56.1)	216 (73.5)	208 (70.7)	189 (64.3)	186 (63.3)	222 (75.5)	
		0.019	0.000	0.000	0.006	0.000	
Maintains Financial Record:							
No	107 (20.4)	62 (57.9)	56 (52.3)	41 (38.3)	45 (42.1)	53 (49.5)	
Yes	417 (79.6)	301 (72.2)	278 (66.7)	253 (60.7)	259 (62.1)	305 (73.1)	
		0.004	0.006	0.000	0.000	0.000	
Positive Financial Attitude:							
No	28 (5.3)	11 (39.3)	5 (17.9)	3 (10.7)	7 (25.0)	5 (17.9)	
Yes	496 (94.7)	352 (71.0)	329 (66.3)	291 (58.7)	297 (59.9)	353 (71.2)	
		0.000	0.000	0.000	0.000	0.000	
Yearly Family Income in USD:							
≤ 6711.64	73 (13.9)	35 (47.9)	26 (35.6)	24 (32.9)	27 (37.0)	28 (38.4)	
6711.65-13423.27	145 (27.7)	89 (61.4)	84 (57.9)	76 (52.4)	82 (56.6)	93 (64.1)	
13423.28-20134.91	116 (22.1)	81 (69.8)	75 (64.7)	70 (60.3)	69 (59.5)	81 (69.8)	
20134.92-26846.54	59 (11.3)	45 (76.3)	44 (74.6)	35 (59.3)	38 (64.4)	43 (72.9)	
>26846.55	131 (25.0)	113 (86.3)	105 (80.2)	89 (67.9)	88 (67.2)	113 (86.3	
		0.000	0.000	0.000	0.001	0.000	

Contd...

Table 1: Contd...

Variables	N (%)	Adequate financial literacy: (Yes); N (%)/P*					
		General	Savings	Insurance	Investment	Total	
Ever done Financial Literacy Course:							
No	498 (95.0)	343 (68.9)	316 (63.5)	274 (55.0)	289 (58.0)	339 (68.1)	
Yes	26 (5.0)	20 (76.9)	18 (69.2)	20 (76.9)	15 (57.7)	19 (73.1)	
		0.386	0.550	0.028	0.973	0.593	

^{*}Chi-square test; *others include dental and AYUSH undergraduates and postgraduates; UG: undergraduate; PG: postgraduate

Table 2: Spearman rho correlation showing strength of association of financial literacy and its various domains with background characteristics of the study subjects (*n*=524)

Variables	Adequate Financial Literacy: (Yes); Correlation Co-efficient (ρ)							
	General	Savings	Insurance	Investment	Total			
Age in years: (increasing)	0.13**	0.24**	0.26**	0.13**	0.25**			
Sex:								
Female vs Male	0.12**	0.22**	0.20**	0.13**	0.23**			
Region:								
Others vs Northern	-0.08	-0.06	-0.02	-0.02	-0.07			
Others vs Southern	-0.03	-0.05	-0.08	-0.01	-0.00			
Others vs Eastern	0.08	0.09*	0.09*	0.07	0.08			
Others vs Western	0.07	-0.01	0.03	-0.04	0.02			
Others vs North-eastern	-0.04	-0.01	-0.05	-0.05	-0.09*			
Marital Status:								
Others vs Married	0.02	0.18**	0.26**	0.11**	0.19**			
Others vs Divorced/Separated	-0.02	-0.10*	-0.02	-0.08	-0.07			
Others vs Unmarried	-0.02	-0.15**	-0.26**	-0.09*	-0.18**			
Qualification:								
Others vs Medical UG	-0.04	-0.09*	-0.25**	-0.06	-0.13**			
Others vs Medical PG/Diploma	0.13**	0.19**	0.16**	0.13**	0.16**			
Others vs Medical Super speciality	0.11**	0.14**	0.12**	0.03	0.14**			
Others vs Nursing UG	-0.23**	-0.25**	-0.06	-0.14**	-0.24**			
Others vs Nursing PG	-0.07	-0.11*	-0.01	0.00	-0.02			
Type of Branch:								
Others vs Medicinal	0.08	0.10*	-0.01	0.00	0.05			
Others vs Surgical	0.05	0.14**	0.09*	0.14**	0.12**			
Others vs Medical Intern	0.05	-0.07	-0.12**	-0.05	-0.07			
Others vs Nursing	-0.24**	-0.28**	-0.06	-0.12**	-0.22**			
Years of Experience: (increasing)	0.15**	0.20**	0.22**	0.16**	0.23**			
Maintains Financial Record:								
No vs. Yes	0.12**	0.12**	0.18**	0.16**	0.21**			
Positive Financial Attitude:								
No vs. Yes	0.15**	0.23**	0.22**	0.16**	0.26**			
Yearly Family Income in USD: (increasing)	0.27**	0.28**	0.20**	0.17**	0.29**			
Ever done Financial Literacy Course:								
No vs. Yes	0.04	0.03	0.10*	-0.00	0.02			

^{*}Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed); UG: undergraduate; PG: postgraduate

Limitation and recommendation

As the study questionnaire was self-administered using online platform, so there might be response, sampling and, reporting related biases. It is also possible that those who had more interest on financial matters might have participated more in the present survey compared with others. All these have limited external generalizability of our survey. However, the study sample comprised of highly educated health personnel and their overwhelming response from almost all the

states and union territories of the country might have alienated possibilities of these biases to some extent. Second, all the financial literacy knowledge items were multiple choice type (each contained 3 to 6 possible answers), so there were remote possibilities that some participants might have used guess work to arrive at possible answers. Finally, we intentionally ignored some personal financial practice related items (i.e., borrowing, investment, savings, etc.) considering sensitivity of reporting these items in an online survey. Financially

literate HCP is not only an asset for the organization they might be part of but the healthcare system at large. [27,28] Thus, all HCPs should know various principles of financial management to take more informed financial decisions and take care of their personal and if applicable organizational finances. Induction of financial literacy in medical undergraduate and postgraduate medical and nursing curriculum may be considered. Promotion and development of self-paced, automated, interactive courses (i.e., "DhanGyan") may be used to sensitize and educate HCPs regarding different financial aspects to improve financial literacy among them.

Conclusions

Financial literacy was found to be quite low in the surveyed HCPs as every third study participant were found to be deficient in knowledge regarding one or more financial attributes. Incorporation of finance management in curriculum of the healthcare allied courses and repeated sensitization of the graduated HCPs are warranted to enable them to take effective financial decisions to meet their personal and organizational financial goals.

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Conflicts of interest There are no conflicts of interest.

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