

Validity and Reliability of Performance Management's Questionnaires on Millennials in Pharmaceutical Industry

S.Thenmozhi^{1*} & Dr.Rincy.V.Mathew²

Research Scholar, Department of Business Administration, Annamalai University, India¹
Associate Professor, Department of Business Administration, Annamalai University, India²
thenumukunth@gmail.com¹

* Corresponding author

Abstract - Today, the performance management system is a backbone of each organisations, when particularly working with more millennials of employee in the organisation, the performance management system it's helps to organisation to move desired path and able to motivate & fulfil the employee requirements to all the level of employee so easily. However, today medicine is essential for everyone to survival of life from new baby born to end of the life, accordingly the pharmaceutical industries were grown up tremendously and all the organisation was relegalized the importance of performance management system (PMS).Some of the organisation more focusing and shown faster toward implementation on PMS. Hence the researchers having lot of scope of research in the sector and more ever the old generation (gen- x) is slowly going to retried and takeover slowly by millennials next couple of years. Therefore, the major objective of present study was to develop and validate an appropriate tool to illustrate the Performance management's questionnaires on millennials in pharmaceutical industry to achieve this, data were collected by area sampling (cluster-random) paired with semi-structured interviews and a questionnaire. The purpose of this study was to conduct the reliability and validity of performance Management Questionnaire (PMQ) for Millennials in Pharmaceutical Industry. 33- Item performance Management Questionnaire was administered to different pharmaceutical industries in India. The subjects of this study were 18 female and 135 male millennials. Validity of the questionnaire was established by face validity & construct-related evidence, to analyse the Pearson's Correlation Coefficient & factors associated with this instrument for millennials. The items were subjected to principal component analysis and results were showed that 30-item PMQ revealed 3 components. For the reliability of instrument internal consistency statistical method (Cronbachalpha) was used. Over all Cronbach alpha coefficient for PMQ was 0.96.

Keywords: Performance management's Questionnaires; Millennials; Pharmaceutical Manufacturing Sector

1. INTRODUCTION

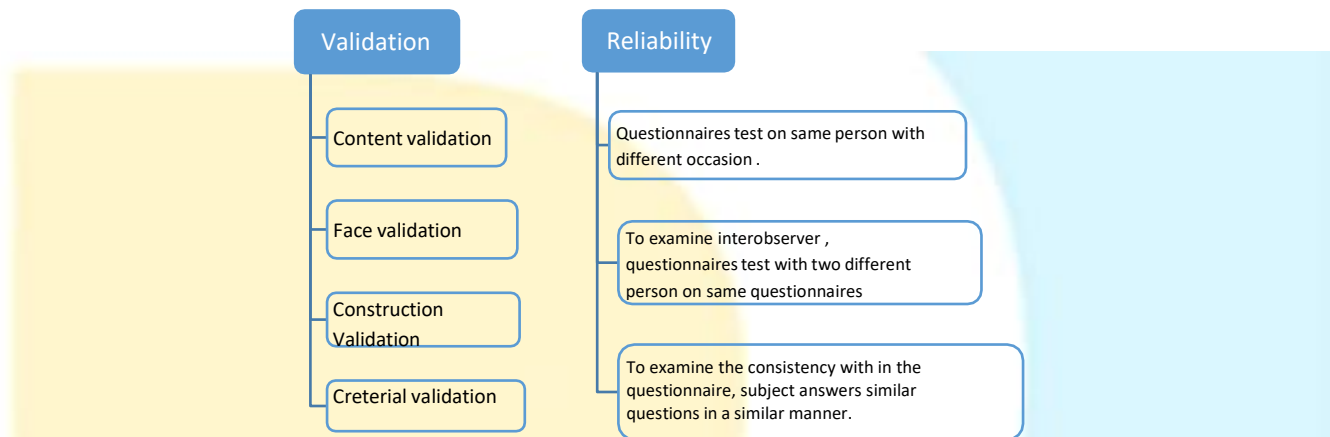
The performance management system is playing a vital role in each organisation, today each organisation have big challenges to fulfil the employee requirements timely, particularly in the pharmaceutical industry have more stringent guidelines and meet the regulatory requirements to fulfil the compliance part throughout lifecycle of product. In this situation to retain the employee long period in same organisation along with competition and demand on globally, in order to fulfil the requirements, most of the authors were point out the performance management system was a great tool to overcome the concern. Further the millennials expectation was different when compared with older generation (Gen-x).Hence the Performance management system were measured choosing several components like the current practices in the organization, Communication and Culture, Training and development/ Reward and recognition, Carrier Development / Employee engagement system, based on these 33 item performance management questionnaires were prepared for millennials in pharmaceutical industry and also to be tested reliability and validity of 33 items.

2. REVIEW OF LITERATURE

The researchers have more ambiguous and delicacy on their own results a part of research the selections of the statistical tool always it is very important on success rate of research. In orderto fulfil and improve the success rate as stated Lindadel, WikkeWalop and Richard M elaborated on selection of appropriate statistical tools for all the level of researches, based on the nature of the research and briefed more on one is selection of "Questionnaires/instrument", Secondly "Validation" their questionnaires and third one is "Repeatability or Reliability". Further, Rietveld and Van Hout, (1993) [11]claims the importance of the factor analysis using number of variable involved as a characterize objective, and the two type of factor analysis according to Decoster (1998)[4] like exploratory and confirmatory factor analysis also as a part supportive techniques for many researchers can use for data analysis to get good conformity yield on the results. And researcher can also make draw the conclusion based on their inferential statistic like to estimate and claim the population but

research should be use carefully to conclude on his hypotheses by Triola (2008).Hence most the authors are recommending the researcher should be precaution or caution to select the right statistical tools to do on his data. Currently most of the statistical tools coming under

readymade software packages, particularly on regression analysis and other econometric techniques like as SAS, SPSS, STATA etc...to get powerful conclusion on their results.



3. IMPORTANCE OF THE STUDY

This study will try to develop the questionnaires, validate and reliability of Performance management’s Questionnaires on Millennials in Pharmaceutical Industry.

4. OBJECTIVES OF THE STUDY

The objectives of this study, to develop, validated and check the reliability of Performance management’s Questionnaires on Millennials in Pharmaceutical Industry.

5. RESEARCH METHOD AND PROCEDURE

As a primary activity, I was focused towards identify the industries and approached to permission to do survey more than 30 Pharmaceutical industry considering all the level of industry from small scale to large scale industries includes multinational organisation. Finally about 12 organisation was given permitted to do the survey directly includes all the range of industries.The present study was focused on millennials working in pharmaceutical industry in India. It was decided to decreased the departmental differences, hence selected main core function area in the pharmaceutical industry like quality control, production , store ,Research and development, ware house etc...among millennials performance management questionnaires were administrated to both male and female millennials.

Instrument: The preliminary data needed for the development of the psychometric instrument were collected from different pharmaceutical industries via qualitative methods, these qualitative methods were intended to explore the way of handling on performance management system in the organisation

among the interviewees. And empirical data generated from this exploratory qualitative study were coded and mind-mapped in an iterative manner until three major dimensions/factors, were clustered using the dendrogram method. Finally, 33 items performance management questionnaires (Table 1) were developed to measure performance management system of millennials in pharmaceutical industries has 5 point Likert –scale response under each items consist of strongly Agreed, Agreed, Neutral, disagree, strongly disagree in scoring 1 point was assigned to strongly Agreed as a positive items, and 5 point was assigned “strongly disagree” at negative meaning item. The PMQ was administrated to subjects at workplace with help of respective HR departments, online & personal contact etc..

Statistical analysis: The analysis of data has been presented in the following order.

- Establishment of Face Validity: As a first step, prepared tentative questionnaires based on the reference on current practices of industries and references with several literatures, the proposed questionnaires was send to subject experts for review based on expert commands accordingly the questionnaires was effectively made relevant on to topic as an under investigations for further study.
- Pilot test: The second step is to pilot study survey on a subject of intended population.
- Dataset: After achieved responses required quantity entry of the responses in to a spreadsheet carefully with double check before validate and reliability.
- Principal Components Analysis: Identifying the underlying components used principal components analysis (PCA). Component or factor loading, factors are being measured by questions. Questions that measure the same load on to the same factors.
- Cronbach’s Alpha: To check the internal consistency

of questions loading on the same factors. This step basically checks the correlation between questions loading onto the same factor. It is a measure of reliability in that it checks whether the responses are consistent. A standard test of internal consistency is Cronbach's Alpha (CA). Cronbach Alpha values range from 0 – 1.0. In most cases the value should be at least 0.70 or higher although a value from 0.60 to 0.70 is acceptable.

- Revise (if needed): The final step is revising the survey based on information gleaned from the PCA and CA.

Procedure: The content validity ratio of each item in the scale was calculated following Lawsche (1975).

Table 1. Mean rating of millennials performance questionnaires issue (N=153)

No	Items	X	SD
1	Why do you have performance system in your organization?	3.75 a	1.679
2	Who sets the performance Goal in your area?	2.73	1.063
3	Clearly established your career path at this organization.	1.66	0.82
4	Adequate information getting about company's new projects on time.	1.65	0.765
5	The systematic programme has been developed that identifies and develop employee skills in the organization.	1.65	0.839
6	The current benefits are satisfied that the company offers excluding your salary.	1.63	0.93
7	Your organization operate a formal performance managing system.	1.60	0.662
8	The role of objects has been added adequately towards your professional development.	1.6	0.781
9	I saw professional growth and career development, Opportunities for myself in this organization.	1.6	0.861
10	Company's benefits and packages are adequate.	1.59	0.892
11	Feeling strong sense of job satisfaction and supervisor / organization welcomes new ideas always.	1.59	0.807
12	Organization having budgetary programme on training of employees.	1.59	0.862
13	Organization is providing as much as initial training as you need.	1.58	0.714
14	The techniques that are using in your organization for assessing performance is adequate.	1.56	0.724
15	Currently following Method using performance appraisal system is adequate.	1.56	0.660
16	Satisfied with current performance Management system in your organization.	1.56	0.802
17	Level of satisfaction with aspects of formal training received in current role.	1.56	0.668
18	Having much opportunities to learn, grow and develop within the organization.	1.56	0.865
19	I have freedom to choose the tool to perform my job the best.	1.56	0.865
20	Working environment is adequate.	1.55	0.678
21	The individual performance is encouraged and rewarded.	1.54	0.778
22	The formal training is meeting day to day responsibilities in current role.	1.54	0.743
23	The manager/supervisor encouraging towards improvement of skills and learning habit.	1.53	0.770
24	Getting reliable formal feedback on your performance frequently.	1.52	0.744

The 33 statements regarding performance management in Table 1, the statement "Why do you have performance system in your organization?" was rated high with a mean score of 3.75, and the lowest mean score was 1.37 for "The performance Management System everyone is well aware in the Organization". For factor-analysis using principal components analysis (PCA) & varimax rotation method (Table-2) was used to determine the underlying dimensions. The Kaiser- Meyer-Olkin (KMO) measure (Table-3) of sampling adequacy and Bartlett's test of Sphericity were also implemented to test the fitness of the data using SPSS software.

25	I have adequate opportunities to express my views in my department /working area	1.52	0.735
26	Comfortable with your workplace culture.	1.52	0.735
27	Manager/supervisor are provided with timely feedback about work.	1.52	0.66
28	Clearly understanding how your work impacts the organization business goal.	1.51	0.744
29	Currently following communication system is suitable for organization.	1.48	0.812
30	I am receiving all the information and needed to carry out my work timely.	1.48	0.67
31	Satisfied with all reward and recognition system in organization.	1.46	0.835
32	Organizations approaches towards training and development.	1.39	0.717
33	The performance Management System everyone is well aware in the Organization.	1.37b	0.666

Note: Five-point Likert scale was used for rating the PMSQ Items ranging from 1 (strongly agree) to 5 (strongly disagree). a = the highest mean among all issues; b = the lowest mean among all issues. Overall

perception statement is a multiple choice single response category ranging from 1 (strongly agree) to 5 (strongly disagree).

Table 2. Factor analysis with varimax rotation test for performance management Questions (n=135)

No	Item	Factor Loading	Name of factor	Eigen Value	Variance	Cumulative variance
1	Company's benefits and packages are adequate.	0.80				
2	Organisation having budgetary programme on training of employees.	0.79				
3	The performance Management System everyone is well aware in the organization.	0.72				
4	Satisfied with current performance Management system in your organization.	0.72				
5	The techniques that are using in your organization for assessing performance is adequate.	0.71				
6	The formal training is meeting day to day responsibilities in current role.	0.70				
7	The systematic programme has been developed that identifies and develop employee skills in the organisation	0.68	Organizational practices (Factor-1)	17.29	57.66	57.66
8	The current benefits are satisfied that the company offers excluding your salary.	0.68				
9	Currently following communication system is suitable for organisation.	0.62				
10	The individual performance is encouraged and rewarded.	0.56				
11	The role of objects has been added adequately towards your professional development.	0.54				
12	Adequate information getting about company's new projects on time.	0.52				
13	Having much opportunities to learn, grow and develop within the organisation.	0.52				
14	Satisfied with all reward and recognition system in organization.	0.51				
15	Currently following Method using performance appraisal system is adequate.	0.50				
16	Comfortable with your workplace culture.	0.81				
17	I have adequate opportunities to express my views in my department /working area	0.71				
18	Organisations approaches towards training and development	0.68				

19	Getting reliable formal feedback on your performance frequently.	0.61				
20	I am receiving all the information and needed to carry out my work timely.	0.61				
21	Manager/supervisor are provided with timely feedback about work.	0.55				
22	I have freedom to choose the tool to perform my job the best.	0.50				
23	Clearly Understanding how your work impacts the organisation business goal	0.50				
24	Woking environment is adequate.	0.84				
25	Clearly established your career path at this organization	0.65				
26	Organisation is providing as much as initial training as you need.	0.65				
27	The manager/supervisor encouraging towards improvement of skills and learning habit	0.63				
28	Feeling strong sense of job satisfaction and supervisor / organization welcomes new ideas always	0.57				
29	Level of satisfaction with aspects of formal training received in current role	0.55				

Note :- Five point scale was used for rating the indicators the range from 1 to 5 (Strongly Agree to Strongly Disagree). The following items were not considered for factor analysis due to cronbach alpha (CA) shown lesser value less than .3.

- 1) Your organization operate a formal performance managing system.
- 2) Who sets the performance Goal in your area?
- 3) Why do you have performance system in your organization?

Table 3. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.944
Bartlett's Test of Sphericity	Approx. Chi-Square	4078.700
	df	435
	Sig.	.000

The final questionnaire for this study consisted contained 30 statements related to performance management system resulting from the factor analysis (Table 2) of the 33 statements originating from the pilot study (Table 1). Respondents were asked to rate their level of agreement with each statement from 5 (*strongly agree*) to 1 (*strongly disagree*). Finally the three questionnaires were removed to improve the CA values 1) your organization operate a formal performance managing system. 2. Who sets the

performance Goal in your area? 3. Why do you have performance system in your organization? There was no value added to measurable on employee performance directly and also the CA values was shown less than .3 hence the three was not considered

Reliability

Reliability of Performance management questionnaires was addressed by using Cronbach alpha, table -4 shows to reliability of PMQ for 153 responded millennials

Table 4. Coefficient Cronbach alpha test for individual factor

No	Scale	Number Item	Coefficient Cronbach alpha(n=153)
1.	Organizational practices (Factor-1)	15	0.96
2.	Organization culture & Employee Engagement (Factor-2)	9	0.92
3.	Organizational Environments (Factor-3)	6	0.89
4.	Total Scale	30	0.96

Cronbach alpha coefficient or internal consistency for three scale of performance management questionnaires were selected 153 millennials in different pharmaceutical

industry. The range was 0.893 (*Organization Environment*) to 0.958(*Organizational practices*) and overall was 0.963.

6. DISCUSSION AND CONCLUSION

The results of study proposed that 30 item performance management questionnaires considered three subscale of millennials in the pharmaceutical industry the subscale are namely factor-1 representing the way of handling the current practices in the organization on performance management system in the industry and also to understand the retained the employee for long services in the same organisation, this factor name as called "*Organization Practices*", factor-2 is coming under dependent variables on the performance management system hence this factor name as called "*Organization Culture and Employee Engagement*" System. Factor-3 also coming under dependent variable on the performance management system hence, this factor nameas called "*Organizational Environmentals*."

From the present study to measure the performance management system in the pharmaceutical manufacturing sectors for millennials, the developed questionnaires having 30 items and there factors and a five point scale, explorative area sample techniques were used. The 30 items results on KMO and Bartlett's Test shown clearly the adequacy of sampling is 0.944 are adequate when compared with minimum requirements is not less than 0.6 and The results of principal component analysis to determine the factors associated with Performance management questionnaire for millennials in pharmaceutical industry shows that, questionnaires provided opportunity to make meaningful interpretation of Performance Management system and Performance management Subscale for millennials in pharmaceutical industry. Reliability testing for Performance management questionnaires indicates that the instrument is are equal valuable for use of performance management millennial in the pharmaceutical industry , in this study all the subscale Cronbach alpha was accepted range between .89 to .96 and over all .96 these level are acceptable based on Jum Nunnally's (1978) criterion should be more than 0.70 or equal. And the Limitation of this study is applicable only on millennial and where their working in the pharmaceutical manufacturing sector and another factor the study is may not represent the whole sample population considering the small size was utilised.

7. REFERENCES

- [1] Agarwal, T.. "Strategic Human Resource Management", Oxford University Press, (2007), pp.723.
- [2] Angelo j. Kinicki, kathryn j. L. Jacobson

,suzanne j. Peterson gregory e. Prussia, "Development And Validation Of The Performance Management Behavior Questionnaire" Personnel Psychology , Vol. 66, (2013), pp.1–45.

- [3] Charles E. Lance Marcus M. Butts Lawrence C. Michels, "The Sources of Four Commonly Reported Cutoff Criteria What Did They Really Say?," Organizational Research Methods, Vol. 9 , no.2 (April 2006), pp. 202-220.
- [4] DeCoster, J. Overview of Factor Analysis , Department of Psychology, Tuscaloosa, August 1, (1998).
- [5] Himel Mondal¹, ShaikatMondal, "Calculation of Cronbach's alpha in spreadsheet: An alternative to costly statistics software" the journal of scientific society, Vol.44, No.2 (2017), pp.117-118.
- [6] Khawaja Khalid, Haim Hilman and Dileep Kumar , "Get Along With Quantitative Research Process" International Journal of Research in Management, Vol.2, No.2 (Mar-2012).
- [7] Linda del ,wikke wallop, Richard H , "Questionnaire development :2. validity and reliability" clinical epidemiology, CMAJ, Vol .136, (1987), pp.699-700.
- [8] Mario F. Triola, Essentials of Statistics, 3rd Edition, Dutchess Community College. Pearson, (2008).
- [9] Murphy, K. and Olsen, M. "Dimensions of a high performance management system: An exploratory study of the US casual restaurant segment", International Journal of Contemporary Hospitality Management, Vol. 21 No. 7, (2009), pp. 836-853.
- [10] Nunnally, J. C.. Psychometric theory (2nd ed.). New York: McGraw-Hill,(1978).
- [11] Rietveld, T & Van Hout R , Statistical techniques for the study of language and language behavior, Berlin: Mounton de Gruyter (1993).
- [12] Sema ALA y and SettarKoçAK, "Validity and reliability of time management questionnaires" Hacettepe Universities EğitimFakültesiDergi,şi 22 . (2002), pp. 9-13.