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Development of a Scale to Measure the Well-being of Farmers in Kolar District of Karnataka

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Authors' contributions

This work was carried out in collaboration between all authors. Author PNK conducted the study, collected the data from farmers and applied suitable statistical tools. Authors NN and MTL are chairperson and member of advisory committee they provided proper guidance and corrected the final manuscript. All authors read and approved the final manuscript.

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ABSTRACT

The farmers' well-being is a dynamic process that gives people a sense of how their lives are evolving. More precisely, it refers to the welfare of farmers which is influenced by both qualitative and quantitative parameters. Well-being may differ from individual to individual due to differences in their socio-economic characteristics. An attempt is made to construct a scale to measure well-being of farmers. The 'r' value of the scale was found 0.7129, which was significant at one per cent level indicating the high reliability and data were subjected for statistical validity, which was found to be 0.9313 for scale, this value is greater than the standard requirement of 0.70. Hence, the scale developed was found to reliable and valid. The well-being scale developed was administered to 30 farmers of Malur taluk in Kolar district of Karnataka state during 2017-2018. The results revealed that 70.33 per cent of farmers had medium to high level of well-being status and 26.67 per cent of farmers had low level of well-being status.

Keywords: Relevancy; reliability; validity; well-being of farmers.

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1. INTRODUCTION

In modern world, human beings are passing through different phases of adaptation situations throughout their life. In this process of adaptation and changes, human beings are facing different problems which affect their happiness in turn affecting the quality of life. The main motive for human being is to attain the success and gratification of one‘s desire. Success and gratification is not the key to happiness, but happiness is definitely a key to success and good life, which nobody is thinking. Human well-being is often associated with quality of life, welfare, well-living, living standards, utility, life satisfaction, prosperity, needs fulfillment, development, empowerment, capability expansion, human development and happiness [1]. Most of the sociologists and other behavioural scientists studied well-being status of people to assess how well societies were performing, with the assumption that happiness levels reflect whether the nation is meeting human needs or not. Thus, measures of well-being would provide social indication of much like to work, income, and education statistics that would in turn monitor the progress of nations. If modern countries are need to make progress, then they should measure well-being of people as it is argued to be one of the vital and significant measure.

The farmers' well-being is a dynamic process that gives people a sense of how their lives are evolving. More precisely, it refers to the welfare of the farmers which is influenced by both qualitative and quantitative parameters. Well-being may differ from individual to individual due to differences in their socio-economic characteristics and their cognitive styles [2]. Further, wealth, quality of life and happiness are most important factors for farmers to keep agriculture in good condition. Hence, the present study is taken up with the following specific objectives.

1. To develop and standardize a scale to measure the farmers' well-being.
2. To analyse the well-being status of farmers.

2. METHODOLOGY

The present study was carried out during 2017-2018 to develop and standardize a scale to measure the well-being status of farmers. The developed scale was used to analyse the well-being status of farmers in Kolar district of Karnataka state. Thirty farmers were personally interviewed using the scale developed to measure their well-being. Based on the cumulated score, the respondents were categorized as low, medium and high levels of well-being considering mean and half standard deviation.

3. RESULTS AND DISCUSSION

3.1 Development of Scale to Measure Farmers' Well-being

Farmers' well-being is operationally defined in present study as the level of overall happiness on quality of life influenced by the factors like income, work, family life, health, housing, personal freedom, social participation and financial security. The method of summated rating scale suggested by [3] and [4] were followed in the development of the scale through six stages *viz.*, identification of components, collection of items/statements, relevancy test, item analysis, reliability and validity [5].

Identification of components: Eight major components related to farmers' well-being were identified based on review of literature and discussion with social scientists. The identified components are: income, work, family life, health, housing, personal freedom, social participation and financial security.

Collection of items/statements: The first step in the construction of well-being scale was to collect statements pertaining to the farmers' well-being. A tentative list of 117 statements pertaining to the well-being of the farmers was collected by consulting social scientists and from review of literature.

Editing of the items: These statements were edited as per the 14 criteria enunciated by [4,6] as a consequence 27 statements were eliminated. The remaining 90 statements were included for the study.

Relevancy test: Ninety statements were mailed to 110 experts in the field of social sciences in state agriculture universities and Indian council of agricultural research institutions to critically evaluate the relevancy of each statement *viz*, Most Relevant (MR), Relevant (R), Somewhat Relevant (SWR), Less Relevant (LR) and Not

Relevant (NR) with the score of 5, 4,3,2,1, respectively. The judges were also requested to make necessary modifications and additions or deletion of statements, if they desire so. A total of 55 judges returned the questionnaires duly completed were considered for further processing. From the data gathered, 'relevancy percentage" and "mean relevancy score" were worked out for all the 90 statements. Using these criteria individual statements were screened for relevancies using the following formulae.

i) Relevancy Percentage (RP)

It was obtained by the formula which is given below.

$$R.P. = \frac{MR \times 5 + R \times 4 + SWR \times 3 + LR \times 2 + NR \times 1}{\text{Maximum possible score}} \times 100$$

ii) Mean Relevancy Score (MRS)

Mean relevancy score was calculated by using the following formula.

$$M.R.S. = \frac{MR \times 5 + R \times 4 + SWR \times 3 + LR \times 2 + NR \times 1}{\text{No. of judges responded}}$$

Accordingly statements having 'relevancy percentage' of 80 per cent and above mean relevancy score of 4.0 and above were considered for final selection. Seventy statements were retained after relevancy test and these statements were suitably modified and written as per the comments of the judges wherever applicable.

Item analysis: Seventy statements were subjected to item analysis to delineate the items based on the extent to which they can differentiate the respondent with higher well-being than the respondent with lower well-being towards agriculture. For this 30 farmers were selected from non-sample area in Malur taluk of Kolar district. The respondents were asked to indicate their degree of agreement or disagreement with each statement on a five-point continuum ranging from "strongly agree" to "strongly disagree". Based upon the total scores, the respondents were arranged in descending order. The top 25 per cent of the respondents with their total scores were considered as the high group and the bottom 25 per cent as the low group, so as these two groups provide criterion groups in terms of evaluating the individual statements. Thus out of 32 farmers to whom the items were administered for the item analysis, 8 farmers with lowest, 8 farmers with highest scores were used as criterion groups to evaluate individual items. The critical ratio, that is the 't' value which measures the extent to which a given statement differentiates between the high and low groups of the respondents for each statements was calculated by using the formula.

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{\left(\sum \bar{X}_H{}^2 - \frac{(\sum \bar{X}_H)^2}{n}\right) \times \left(\sum \bar{X}_L{}^2 - \frac{(\sum \bar{X}_L)^2}{n}\right)}{n(n-1)}}}$$

Where,

X_H = The mean score on given statement of the high group

X_L = The mean score on given statement of the low group

$\sum x^2_H$ = Sum of squares of the individual score on a given statement for high group

$\sum x^2_L$ = Sum of squares of the individual score on a given statement for low group

n = Number of respondents in each group

$\sum$ = Summation

t = The extent to which a given statement differentiate between the high and low group.

After computing the 't' value for all the items, 51 statements with highest 't' value equal to or greater than 1.69 were finally selected and included in the final well-being scale.

Reliability: Reliability refers to precision of the scale constructed for any purpose. It is otherwise called as the extent to which repeated measure produces the same result. In any social science research newly constructed scale has to be tested for its reliability before it is used.

The split-half method was employed to test the reliability of the well-being scale. The value of correlation co-efficient was 0.8674 and this was further corrected by using Spearman Brown formula and obtained the reliability co-efficient of the whole set. The 'r' value of the scale was 0.7129, which was significant at one per cent level indicating the high reliability of the scale. It was concluded that the well-being scale constructed was reliable.

1) Half test reliability formula

$$r_{1/2} = \frac{N(\sum XY - (\sum X)(\sum Y)}{\sqrt{(N\sum X^2 - (\sum X)^2)(N\sum Y^2 - (\sum Y)^2}}$$

Where,

$\sum X$ = sum of the socres of the odd number items
$\sum Y$ = sum of the scores of the even numbers items
$\sum X^2$ = sum of the squares of the odd number items
$\sum Y^2$ = sum of the squares of the even number items

2) Whole test reliability formula

$$r_{11} = \frac{2.\, r_{1/2}}{1+ r_{1/2}}$$

Where,

$r_{1/2}$ =half test reliability

Validity: It refers to how well a scale measures what it is purported to measure. Further, the data were subjected for statistical validity, which was found to be 0.9313 for scale, and the value is greater than the standard requirement of 0.70. Hence, the validity co-efficient was also found to be most appropriate and suitable for the tool developed.

Thus, the developed scale to measure the farmer's well-being was feasible and appropriate.

Administration of well-being scale and Method of scoring: The final scale consists of 51 statements (Table 1) for determining the farmers' well-being. The response was collected on a five point continuum, namely, strongly agree, agree, undecided, disagree and strongly disagree with assigned score of 5, 4, 3, 2, and 1, respectively for positive statements and vice versa for negative statements. The well-being score of a respondent was calculated by adding up the scores obtained by him/her on all items/statements. The well-being score of this scale ranges from a minimum of 51 to a maximum of 255. Higher score on this scale indicates that the respondent has higher level of well-being.

Table 1. Scale to measure farmers' well-being

Sl. no.	Statements	SA	A	UD	DA	SD
I	**Income**					
1	Adequate income is an important factor for bringing happiness in life					
2	Good market facilities will increase farm income and thereby well-being of famers					
3	Assured income from agriculture helps the farmer to complete all the farm activities in time leading to better well being					
4	Farmers practicing in diversified agricultural activities will have better well-being					
5	Irrigated farmers are better off than rainfed farmers					
II	**Work**					
1	Nature of work decides the status of well-being					
2	Working in farm is good for both physical and mental health which are prime requisite for better well-being					
3	Coping with stressful work ensures well-being of farmers					
4	Increased hours of active work in farm activities results in better well-being					
5	Long working hours can harm the personal health thereby it reducing the well-being					
6	Involvement of all the family members in agricultural activities improves the farmers' well-being					
7	Smart work in combination with mechanized farming increases the well-being					
III	**Family life**					
1	Number of members in a family determines the well-being of farmer					

Sl. no.	Statements	SA	A	UD	DA	SD
2	Happiness in family depicts the well-being					
3	Participation of all the family members in agricultural activities and decision making process improves the well-being					
4	Good understanding and relationship among family members promotes well-being					
5	Family with better informed members about agricultural activities will have better well-being					
6	Education level among family members is detrimental to the well-being					
IV	**Health**					
1	Farm family with good health status indicates the better well-being					
2	Presence of psychologically stressed member in farm family hinders the well-being					
3	Existence of disabled members in farm family will reduce the well-being					
4	Leisure and personal care are essential for farmers to maintain the good health condition which is requisite for the better well-being					
5	Farm family member's concerned about their health enhances the well-being					
6	Increased expenditure on health related issues affects the well-being					
7	Availability of health insurance facility improves well-being					
V	**Housing**					
1	A safe and comfortable place to live is fundamental for the well-being of farmers					
2	Living in his own house indicates higher level of well-being					
3	House constructed with modern amenities is a measure of well-being and progressiveness of farmer					
4	Having enough space in the house for storage of grains will increases the well-being					
5	House constructed out of own fund represents better well-being than of borrowed funds					
6	Spending sizable proportion of household income on housing is an indicator of well-being					
VI	**Personal freedom**					
1	Farmer with higher level of personal freedom will have better well-being					
2	Personal freedom to family members in the family represents better well-being					
3	A freedom in decision making regarding family matters indicate well-being					
4	Freedom in taking decision in agricultural activities indicates better well-being					
5	Having optimistic opinion about future results in better well-being					
6	Personal freedom to all the family members will often result in conflicts among household and reduces well-being					
VII	**Social participation**					
1	Cosmopoliteness among farmers indicates better well-being					
2	Farmers participating in social activities will increase well-					

Sl. no.	Statements	SA	A	UD	DA	SD
	being					
3	Participation in agricultural-related organizations promises higher well-being					
4	Community leadership and participation helps in gaining social status of the farmers which in turn higher well-being					
5	Farmers feel happy when others give respect to him in the society					
6	Social relationships are supportive and rewarding for well-being					
VIII	**Financial security**					
1	Having saving bank account is an indicator for well-being of farmers					
2	Possessing Kissan credit card account is associated with better well-being					
3	Regular renewal of Kissan credit card accounts will increase the financial security for improved well-being					
4	Owning assets represent the financial security of the farmer					
5	Crop insurance assures well-being of farmers					
6	Higher dependence on others sources for farm capital reduces well-being					
7	Subsidiary occupations ensures better financial security and well-being					
8	Natural resource management directly increases efficient utilization of resource enhance the well-being					

SA-Strongly Agree, A-Agree, UD-Undecided, D-disagree, SD- Strongly Disagree

Table 2. Well-being status of farmers

(n=30)

Sl. no.	Categories	Well-being status	
		Number	**Per cent**
1	Low (< 88.30)	8	26.67
2	Medium (88.30-93.40)	12	40.00
3	High (>93.40)	10	33.33
	Total	**30**	**100**

Mean = 90.80, Standard Deviation = 5.13

3.2 Well-being Status of Farmers

The well-being scale developed was administered to 30 farmers in Malur taluk of Kolar district in Karnataka state during 2017-2018. The well-being score of this scale ranges from a minimum of 51 to a maximum of 255, respectively. Based on the mean (90.8) and half standard deviation (2.56) the farmers categorized into three well-being status category *viz.,* low, medium and high level.

It is found from Table 2 that 70.33 per cent of farmers had medium to high level of well-being status and 26.67 per cent of farmers had low levels of well-being. Availability of improved farm technologies, employment throughout the year in farm enterprises (Agriculture, horticulture, sericulture and dairying) are major reasons for a majority (70.33%) of the sampled farmers falling under medium to high category of well-being status.

4. CONCLUSION

The well-being scale developed is found to be reliable and valid; hence, it can be used to measure the farmers' well-being. The developed scale can be used by researchers to measure well-being of farmers. The results of the study revealed that majority (70.33%) of farmers had medium to high level of well-being status. It can be concluded that the scale developed is useful in explicitly measuring the farmers 'well-being.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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