

Measures of Socio Economic Status of Farmers – A Systematic Literature Review

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Abstract. *Socio-economic status (SES) is conceptualized as the social and economic standing or class of an individual or family. Socio-economic status of farmers is an important variable in agricultural social sciences studies. While it is often estimated with various indicators, however, these indicators are inconsistent and irrelevant. An attempt was made to extract the various variables used to measure the socio-economic construct and redefined it into a precise concept. A systematic review of the studies reporting the socio-economic conditions of farmers was performed by adopting the preferred reporting items for systematic reviews and meta-analysis (PRISMA) best practices method and identified 235 studies. Vote counting was used to generate the determinants of SES in the selected studies. It was observed that the measures of SES in agricultural studies were scattered and obscure. From the extracted measures, based on the SES concept, 39 variables were identified, redefined, and relevant indicators were classified into two groups: social and economic status. These include their education, occupation, income per capita, expenditure, savings, land ownership, livestock status, indebtedness, area under crops and material possession in house and farm, housing conditions, social participation, family size, caste/race, marital status, dependency ratio, extension contact, and mass media participation. The above-mentioned variables under the social and economic standing of farmers could be adopted by the researchers, and policymakers in Asian and African sub-continent based on the areas of interest in studying the SES of farmers.*

Keywords: agriculture, class, extension, farmers, position, review

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1. Introduction

Socio-economic status (SES) plays an important role in significantly influencing one's access to basic resources, way of life, and other factors including food availability and nutritional status, etc. (Smith, 2005; American Psychological Association, 2007; Surabhi and Mamta, 2016). One of the most crucial variable in social science studies and research is socio-economic status (SES), which influences a sample's psychological and behavioral characteristics, including knowledge, attitude, perception, adoption, innovativeness, aspiration level, economic motivation, etc. (Budry and Curtis, 2007; Raza et al., 2015; Pratima and Poonam, 2019; Daniel et al., 2022). From this point of view, the estimation of the socioeconomic conditions of the farmers cannot be undermined. Sociologists and economists over the years comprehended social inequality and social attitudes, toward an individual's socio-economic status, but the two disciplines have measured SES differently. The measurement of SES differs even with the individuals' profession being from either urban or rural. Socio-economic status measure is a combination of both the social and economic standing of an individual or family. The definition of socio-economic status proposed by F. Stuart Chapin: "evaluates the position of a person's family or household in society as well as their access to financial, cultural, social, and human capital. According to Gaur (2013) based on many factors that

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influence social and economic development, socio-economic status (SES) is a measurement of a family's position in relation to others on both an economic and social level. A family's socioeconomic standing refers to where the family stands in relation to certain stated characteristics, such as their assets, economic and social situation, education, occupation, social involvement, caste, strength, and political influence, among others (Tiwari et al., 2005). Based on the above definitions it can be concluded that socio-economic status is a multi-dimensional construct measured from the observed factors. Thus, socio-economic status is viewed as a complex pattern made up of related components that work as a whole to elicit a response. In other words, these definitions propose that many elements consistently interact to establish the family's or an individual's status.

This study was attempted by the author in order to collect items as part of scale developed for measurement of SES of farmers. There are several economic and social variables that define SES. Though these variables are selected based on the suitability of the particular study, they are wide and scattered as observed from the decade-old persistent literature that highlights the socio-economic profile of farmers (Rakesh 2004; Shailash and Gyanendra, 2009; Suresh et al., 2015; Dheerendra et al., 2020; Guleria et al., 2020). Even in the psychological literature because of measurement inconsistency, the entire spectrum of SES was not covered as reported by American Psychological Association, 2019. So with certain times, an attempt should be made to pass beyond expressing the socio-economic conditions of farmers in vague and indefinable notions to a more precise concept. Based on the above-mentioned definitions, the variables determining the socio-economic status of farmers can be narrowed down and defined in a standard and systematic way in agriculture research. This research contributes to how SES should be conceptualized and measured by complementing it with measures indicative of assessing SES in current agricultural social sciences research. Hence, the study attempts to answer the research question, what are the measures of SES of farmers. With this aim of arriving at measures of SES, a systematic review was performed in this study.

A systematic literature review is a formal and standard research method that finds, evaluates, and analyses studies that have all attempted to address a similar subject. A systematic review is a formal research study that follows a clear, predefined structure to find, assess and analyze studies that have all tried to answer a similar question. Synthesis of multiple studies will be a challenging task for the researcher due to heterogeneity concerning sampling, differences in reporting results, and location-specific nature of agriculture. However, the analysts also combine the study results numerically to create a summary estimate in addition to the narrative summary. (Bhuvana et al., 2019a). By undertaking a systematic literature review, this study contributes to the establishment of valid and consistent variables measuring SES of farmers that have an influence on the domains of knowledge, adoption and impact studies of farmers (Brijendra et al., 2020; Dheerendra et al., 2020).

Methodology

Literature Search Strategy

The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) technique was used for systematic review. The search was performed in databases like Google Scholar, Scopus, and Science Direct. Various combinations of algorithms related to the SES of farm families were considered and the outcome of interest was used as input to search for research papers. Algorithms included combinations of keywords from each of the following categories: a) socio-economic status b) "socio-economic profile" c) "socio-economic variables" and d) "socio-economic conditions".

For the initial screening of the articles, inclusion and exclusion criteria were established (Table 1). For further extraction of articles from title, and abstract screening, the studies that a) considered the socio-economic characteristics as an outcome and b) included at least three determinants from socio-economic, social, or economic characteristics d) the sample should be farm families/farmers were selected.

Table I: Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Initial identification		
Literature type	Research articles	Review papers, conference papers, book chapters, and series
Source type	Journal	Trade journal
Publication stage	Final	Press
Access type	Open source	Restricted access
Subject area	Agricultural, environmental, social and biological sciences, Economics, Econometrics and Finance, Veterinary	
Language	English	Non-English
Timeline	2000-2022	<2000
Screening		
Title and abstract	<ul style="list-style-type: none"> Existence of predefined keywords in the title, abstract, or keywords part of the paper. Considered the socio-economic characteristics as an outcome. Sample should be farm families/farmers. 	
Full text	<ul style="list-style-type: none"> Included at least three determinants from socioeconomic, social, or economic characteristics 	

Statistical synthesis

The simplest but limited method of systematic review: vote counting, was employed for analyzing evidence from numerous evaluations. Vote counting involves counting the number of positive studies with the number of negative studies (Jessica and Subhrendu, 2012). For this study with a slight modification, vote counting was used to generate the determinants of SES in the studies selected (Muhmaad et al., 2015; Bhuvana et al., 2019b). A vote is cast for each of the variables measuring SES from each study. This coding is repeated for all the variables identified in the studies. Vote counting thus offers a helpful beginning point for a detailed evaluation of studies for a certain research topic, allowing it to be useful in arriving at a pool of items to be considered for the development of standard measuring tools.

2. Results and Discussions

The number of studies from each database using the above-mentioned search strings was presented in table 2. The database search resulted in a total of 10,780 articles. From the automation filters provided by the databases, 9551 articles were marked as ineligible using the inclusion and exclusion criteria determined for initial identification (e.g.non-English, restricted access, review papers, etc.) and deleted from the records.

This shows that the term socio-economic is part of many studies but not necessarily all these studies measuring the socio-economic phenomenon of farmers. From the remaining 1229 articles, using the Rayyan software, 407 articles were excluded after duplicate removal.

Further after screening the title and abstract 521 studies were eliminated for not having socio-economic status as an outcome, non-farmer population, non-existence of predefined keywords in the title, abstract or keywords part of the paper. Based on the eligibility criteria of including at least three determinants of SES, a total of 66 studies were eliminated from the available 301 studies, after a thorough screening of the full text. A total of 235 studies were chosen for quantitative analysis based on suitability, relevancy, and clarity of addressing socio-economic variables.

Table II: Keywords used and the total number of publications from databases

Databases	Search strings and search terms		No of articles
Scopus	Main searching terms	"socio-economic status" AND "determinants" AND "farmers"	19
		"socio-economic status" AND "farmers"	331
		"socio-economic conditions" AND "farmers"	350
		"socio-economic conditions" AND "determinants" AND "farmers"	15
		"socio-economic variables" AND "determinants" AND "farmers"	21
		"socio-economic variables" AND "farmers"	131
		"socio-economic profile" AND "determinants" AND "farmers"	6
		"socio-economic profile" AND "farmers"	76
Science Direct	Main searching terms	"socio-economic status" and "determinants" and "farmers"	1027
		"socio-economic status" AND "farmers"	3093
		"socio-economic conditions" AND "determinants" AND "farmers"	655
		"socio-economic conditions" AND "farmers"	2717
		"socio-economic variables" AND "determinants" AND "farmers"	595
		"socio-economic variables" AND "farmers"	1278
		"socio-economic profile" AND "determinants" AND "farmers"	119

		"socio-economic profile" AND "farmers"	347
Google Scholar	Main searching terms- in the title of the article	"socio-economic status" AND "farmers"	125
		"socio-economic conditions" AND "farmers"	22
		"socio-economic variables" AND "farmers"	7
		"socio-economic profile" AND "farmers"	67

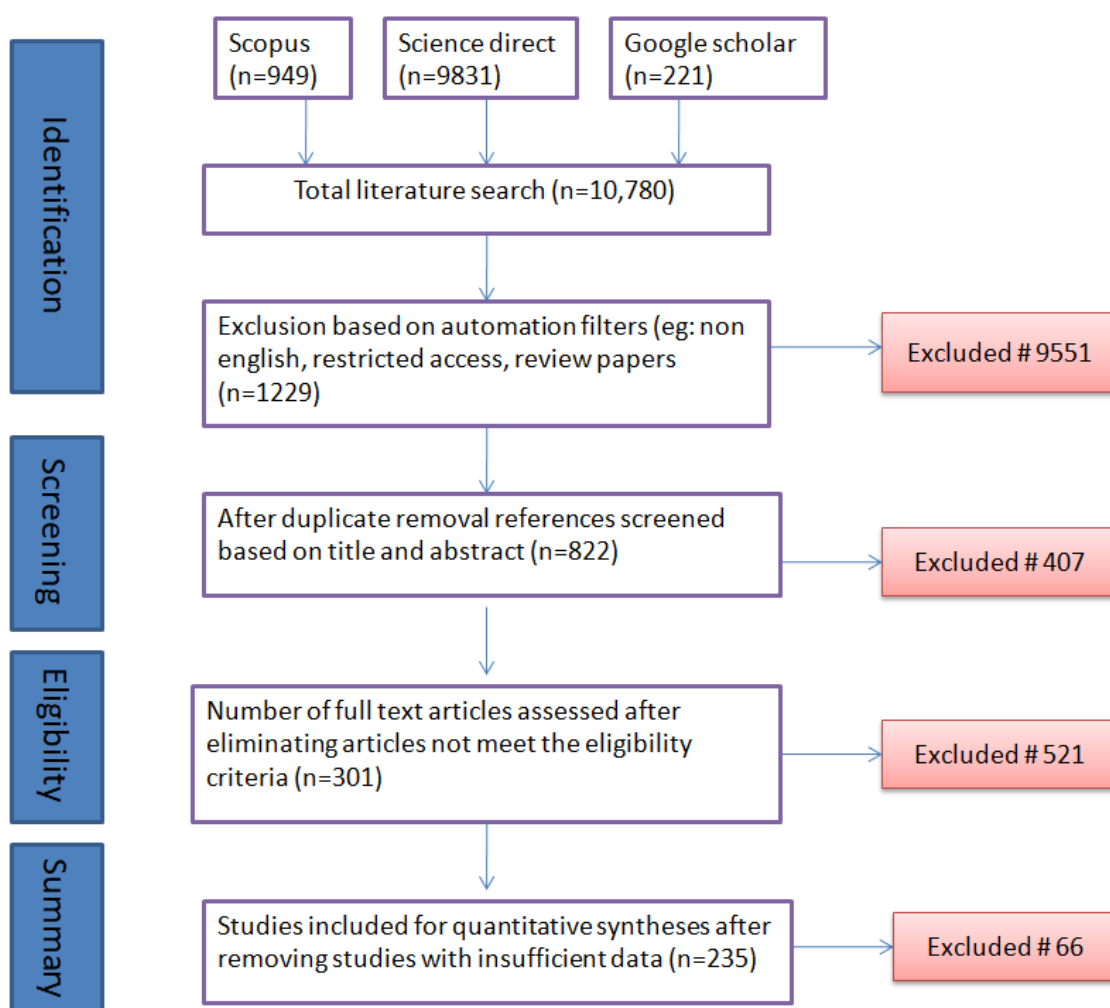


Figure 1: PRISMA flowchart depicting the number of studies inclusion and exclusion for identifying the determinants of SES (adapted from Mengist et al., 2020).

Description of the sample of the selected 235 articles

Among the 235 articles, 152 articles belonging to the Indian sub-continent and 83 articles are from other parts of world include African, Asian sub-continent. A very minute sample of articles belong to Europe and South American parts including countries like France, Croatia, Romania, Peru, Brazil and Argentina. Among the Asian continent articles belong to majorly from China, Nepal, Bangladesh and Philippines. Whereas, African countries include Rwanda, Nigeria, Tanzania and Ethiopia. The sample population of all the articles includes farmers practicing agriculture, fisheries, dairy (goat, sheep, cattle) etc.

The diagram is a complex network visualization. It features five large, overlapping circles in different colors: green (top-left), yellow (top-right), blue (middle-right), red (bottom-center), and purple (bottom-right). Each circle is labeled with a large, semi-transparent word: 'rural' (green), 'farming' (yellow), 'behaviour' (blue), 'agricultural' (red), and 'agriculture' (purple). Within and between these circles, there are numerous smaller nodes (grey dots) connected by thin lines. Many of these nodes are also labeled with text. The labels include: 'rural', 'climate', 'India', 'farming', 'farm', 'characteristics', 'cultivation', 'socio-economic', 'knowledge', 'study', 'adoption', 'technology', 'practices', 'management', 'profile', 'Socio-economic', 'goat', 'sheep', 'analysis', and 'behaviour'. The network is dense, with many lines radiating from central nodes, particularly in the yellow and red circles.

Indicators for determining the Socio-economic Status of Farmers: Results of Synthesis

143

occupational status also included as an alternative indicator of SES (Le Grand and Tahlin, 2013; Alexander et al., 2017). The social class of farmers was based on their self-employed occupation with grouping based on the level of employment provided (Alexander et al., 2017). Level of education was considered to be the most significant variable in measuring SES as it was considered to be influencing one's occupation and income earned (Mirowsky and Ross 2003; Shavers, 2007). Michalet al. (2021) in their study on socioeconomic determinants of small family farms identified different variables under social and economic status. The economic position included their income, value of land, investment capacity, and value of household material situation. Kar and Dhara (2007) stated the status of agricultural workers in terms of literacy level and economic condition. Whereas farmers' social context was provided in terms of them being a member of either a farmer group or a cooperative group depicting their social participation (Natashaet al., 2022).

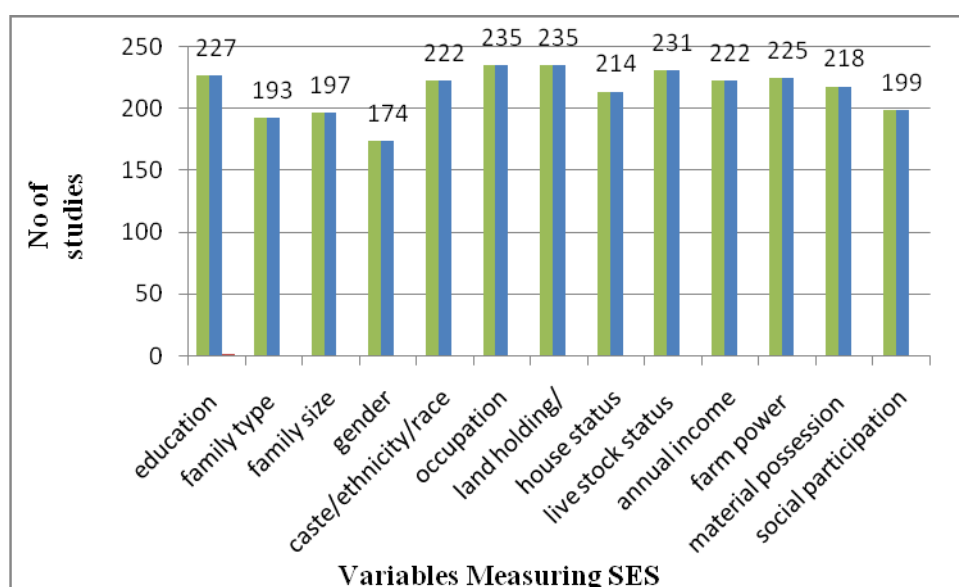


Fig 3: Frequency of variables in more than 75 per cent of studies measuring the SES of farmers

Figure 4 depicts the variables which were included in 50 -75 per cent of studies. These variables include extension contact, farming experience, agricultural implements, marital status, age, and mass media participation. Variables depicting the crop and cultivated land status such as cropping intensity, area under crops, source of irrigation, and irrigated area were also selected for the socioeconomic status of farmers (Sharma et al., 2022). Animal housing pattern was observed as an important variable in determining the SES of farmers especially dairy farmers (Kumar and Tripathi, 2012; Bishist et al., 2022). Subsidiary occupation in addition to the primary occupation of the farmer was also considered as it would be providing employment during the lean season which in turn would assist in the betterment of their economic conditions (Pandey et al., 2015; Panda et al., 2022). Moving to the next set of variables which were found in a few studies as depicted in figure 5. As such variables like indebtedness, savings, expenditure, and investment, though less frequently considered, define the economic position of the individual (Gaur, 2013; Onwujekwe et al., 2006; Kamakura and Mazzon, 2013; Kyriopoulos et al., 2016). Indicators such as value orientation, economic motivation, cosmopolitaness, risk orientation, and scientific orientation were employed in studies, analyzing the socio-economic factors affecting the behavior i.e. knowledge and adoption of farmers (Gandhale et al., 2022). However, these variables do not suggest the socio-economic position of the individual. The other variables include the effect on crops, ownership pattern, and their annual employment days. The ownership pattern variable depicts the state of their cultivated land, which would eventually be described in their land-holding status.

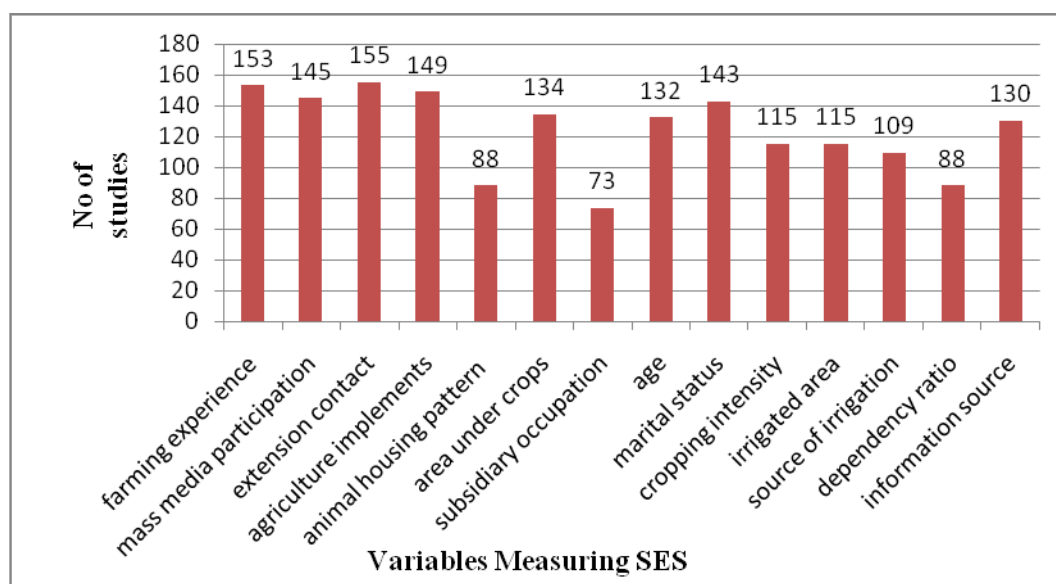


Fig 4: Frequency of variables in 50 -75 per cent of studies measuring the SES of farmers

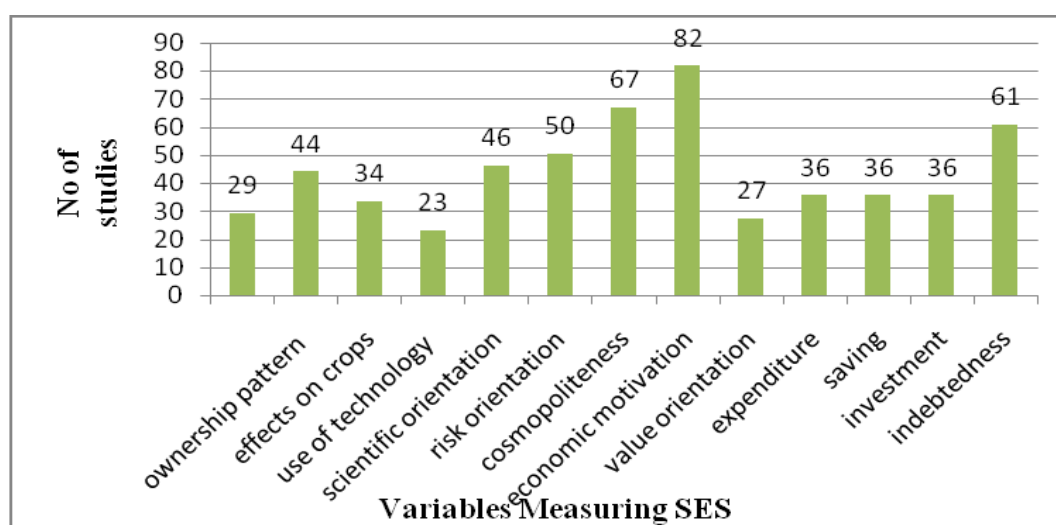


Fig 5: Frequency of variables observed in below 50 per cent of studies measuring the SES of farmers

From the 235 studies that have been assessed to establish determinants of the socio-economic status of farmers, it could be inferred that the variables measuring the multi-dimensional construct SES were scattered and definite variation was observed. From the above-retrieved variables, consistent and valid indicators reflecting the SES of farmers needs to be identified. For the present study, the definition of SES of farm families was considered in terms of their social and economic position. The economic status is defined as the position of farmer in society determining their income situation which in turn shaped the family's quality of life constitutes their social status (Deshmukhand Akkilagunta, 2020; Michał et al., 2021). The income situation of farmers would be determined not only by the mere amount but also by leading factors to it such as their education, occupation, land holding, livestock number, farm power, and type of crops they grow (Baumer, 2002; Tuyen, 2015). This income situation which would be affected by their indebtedness, savings, and expenditure also depicts their economic standing, but these variables could be employed when excessively focused on their economic and financial status. The social position of the individual reflects their living standard and the prestige associated. It includes their caste, cultural and event participation, housing conditions, material possessions in the house, and family size (Bourdieu, 1986; Tiwari et al., 2005;

Britannica, 2019). As for farmers, contact with extension agents, and mass media participation also determines the extent of progressiveness associated with the prestige in the village. The various psychological variables could be deleted as they directly do not deliver to the materialistic and access approach of SES observed in the definitions (Deshmukhand Akkilagunta, 2020; Worthy et al., 2021). Based on the definition, and review in terms of both economic and social status some items were deleted and the following determinants were finalized under economic and social positions.

The following are major variables considered from the analysis under economic and social status:-

Economic status of farmers includes their education, occupation, income per capita, expenditure, savings, land ownership, livestock status, indebtedness, area under crops, and material possession in house and farm.

Social status include their housing conditions, social participation, family size, family type, caste/race, marital status, dependency ratio, extension contact, and mass media participation.

Research areas

The main research topics of selected studies measuring the SES of farmers were also analyzed. Based on their dependent and independent variables five exclusive categories were identified. The first three areas refer to psychological and behavioral components of the sample with studies referring specifically to their knowledge, attitude/perception, and adoption. A fourth category refers to impact (e.g., of technology, scheme, program). Finally, a fifth category comprises of household dynamics and demography (e.g. wealth, poverty, income inequality) referring to the current position of an individual.

Figure 6, below indicates that research on family dynamics depicting their current economic and social well-being in society was observed to be the highest (64 studies). This possibly indicates the importance of SES measurement in rural sociological research which aids to identify and quantify the factors which are inhibiting their growth and development. Impact studies were found to be the next prominent research area (53 studies) as assessing the SES of stakeholders indirectly measures the success of any technology, scheme, and program implemented. Adoption, perception/attitude, and knowledge level of farmers were other areas where focus on the socio-economic profile of farmers was assessed as it often predicts these psychological and behavioral components of farmers. Around 32 studies accounted for other residual areas such as farmer participation in rural development activities, and access to resources (credit, input, etc.) which were found to be affected by their socio-economic conditions. Overall the results conclude that SES measurement of farmers was a basic requisite for sociologists as it was closely intertwined with all the subfields in the sociological research domain.

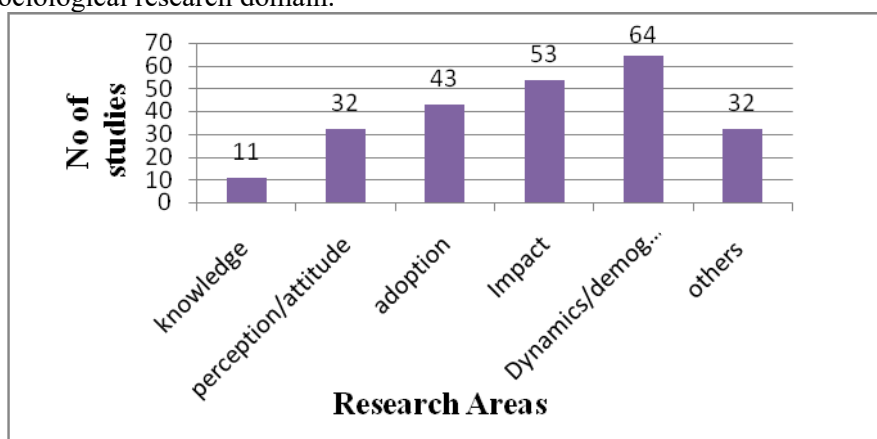


Fig 6: Frequency of SES measures in studies by research area

Limitations of the present study

As our focus was mainly on identifying the measures of SES, the empirical results were not taken into consideration as SES being a construct rather than a dependant variable measured with composite variables. Detailed list and description of all the sample 235 articles could not be presented due to space and

time constrain in the study. The results of the study focused, mainly, on the concept identification and adding to body of knowledge rather than a directly dealing with empirical data. As the sample mainly consists of articles from India and other parts of Asia and Africa, the generalization of results for farmers all over the world could be limited.

3. Conclusions

The fundamental conceptualization of SES involves access to resources. It also involves the materialistic approach of their income situation affecting their living standard. Farmers' socio-economic position plays a major role in understanding their access to resources which in turn affects their development. However social scientists, determining the farmers' socio-economic standing continue to vary taking into account various combinations of variables. The question of which of these are more valid and precisely depicts the SES concept. The study attempted to address this question by employing a systematic review to identify the determinants of SES. A total of 235 studies were taken into consideration after applying the inclusion criteria from the initial 10,780 studies from the literature search. The variables found in at least 20 studies were included. Among the 39 variables identified, the most recurring variables included education, occupation, land holding, income level, housing conditions, and social membership. Irrespective of whether understanding the effect of farmers' SES on their knowledge levels or adoption behavior, these variables were included in SES. These form the basis of the individual's economic position and social standing in relation to others. Individuals' savings, expenditures, investments, and indebtedness though addressing their financial capital situation, were not found to be recurring variables in determining SES. Demographic variables such as family size, marital status, caste/race and type of family are common when determining SES of individuals in society. Variables like livestock status, farm power, extension contact, and mass media participation are exclusive in depicting the SES of individuals engaged in agriculture activities. Overall from the study, it could be understood that the precise concept of SES in agricultural studies was not found. The results can be generalized to Asian and African sub-continent with consideration to the sample studies nonetheless the above-mentioned variables under the social and economic standing of farmers could be adopted by the researchers, and policymakers based on the subjects of interest in studying the SES of farmers.

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