

FULL PAPER

Study on sustainability reports of healthcare sector in India: Evidence from five leading Indian pharmaceutical companies

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As a result of its innovations, the pharmaceutical industry is well-positioned to help humanity, achieve wealth and universal health. The COVID-19 emphasizes the significance of these industries to both society and the economy. Nevertheless, the issue of pharmaceutical industry sustainability is gaining greater attention and expectations are rising. The study compares the social, environmental, and economic performance of five pharmaceutical companies. It also looks into the comprehensiveness of sustainability reports published by five top Indian pharmaceutical companies. In this study, the sustainability reports of five pharmaceutical firms were compared and evaluated following GRI 2011 standards. Based on the inclusion of sustainability reports, a numerical score ranging from zero (0) to three (3) has been assigned to each of the 84 performance indicators of the GRI 2011 criteria (9-economic dimension, 30-environmental dimension, 45-social dimension). Analysis has pointed out that economic reporting is much more precise than social and environmental reporting.

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KEYWORDS

Pharmaceutical industry sustainability; Global Reporting Initiative (GRI); sustainability reporting; environmental dimension; economic dimension; social dimension.

Introduction

Since the 1980s, sustainability has received more attention. It can be characterized as "meeting the present needs without compromising the ability of future generations to meet their own needs" [1]. Sustainability in healthcare is a multi-disciplinary subject having its presence in the areas of medical science, operations management, and sustainability itself.

Sustainability indicators and measurement techniques must be used systemically to address the issues associated with sustainability in healthcare. When chosen and used appropriately, sustainability indicators can help managers and policymakers formulate plans, establish improvement goals, assess advancement, and establish benchmarks [2]. Diverse approaches to quantifying and discussing sustainability have been proposed by research. The

performance of healthcare companies on the three sustainability dimensions, E, S, and G, is being described by businesses more and more through the usage of the Environmental, Social, and Governance (ESG) framework [3-5]. Pharmaceutical companies are inherently involved in certain aspects of sustainability because their products improve people's health and well-being, but other aspects are up for debate. These include the effects of drugs' life-cycle on the environment, unequal access to medicines, and unethical sales practices [6]. Water contamination is one of the main ways that the production of pharmaceuticals affects public health because it is linked to high raw material, solvent, and energy consumption, as well as high waste output and heavy pollution in many circumstances [7]. Moreover, pharmaceuticals have the potential to harm aquatic life after being taken and eliminated from the body. They can end up in soil and groundwater [8]. Because of this, the pharmaceutical business has embraced sustainable methods and shown greater care for the environment [9]. The findings enable us to consider the function of ESG pillars in the pharmaceutical industry more thoroughly. These findings, which emphasize the significance of the governance pillar, may assist managers in considering and defending their decision to allocate capital to particular ESG pillars [10]. The Global Reporting Initiative (GRI) has produced sustainability reporting rules that offer a methodical manner for corporations to disclose their performance regarding the social, environmental, and economic aspects of sustainability [11]. The economy and environment must be taken into account to achieve sustainable development, which is another crucial factor as the global economy was severely damaged by COVID-19, which also increased poverty [12].

Medical waste is one of the main sources of pollution in the world and has a significant impact on the transmission of illness as well as the quality of the air, water, and land in and

around healthcare facilities, as demonstrated by Klangsin and Harding [13]. As a result, it is now essential for healthcare organizations to have a multidisciplinary staff that handles many facets of healthcare sustainability. Furthermore, sustainability initiatives in the healthcare sector are required to lessen the industry's detrimental effects on the national environment and economy [14], as public healthcare has a significant influence on national economies [15].

Objectives

1. To investigate if social, environmental, and economic aspects are covered by sustainability reports provided by the top five Indian pharmaceutical companies.

2. To compare the performance of five different selected pharmaceutical companies in the economic, environmental, and social dimensions.

As environmental awareness has grown, reporting on environmental dimensions is becoming more comprehensive. However, the previous studies are not comprehensive covering all the parameters. As per existing literature, the economic dimension's reporting was rather more extensive in comparison to environmental and societal aspects.

Sustainability is an overview of the global system, which comprises the environmental, social, and economic aspects, in which the needs of the present are met without jeopardizing the ability of future generations to meet their requirements. The United Nations 2030 agenda has brought more attention to the sustainability of businesses. Public health is directly affected by environmental quality; hence sustainability and healthcare are closely linked. The area of sustainability in the healthcare industry is multidisciplinary and encompasses medical science, operations management, and sustainability itself. In the domain of healthcare, social sustainability pertains to the

capacity of a healthcare system to augment the standard of living and elevate the welfare of a community. Thus, there is increasing interest in developing more accurate metrics for assessing the sustainability of healthcare systems.

Following the introductory section, this paper covers materials and methods, results and discussion, conclusion with scope for future research.

Experimental

Materials and methods

Sample and data collection

The investigation of the study has used secondary data. The Scoring Sustainability report, which measured issues related to society, the environment, and the economy using the GRI 2011 principles, is an intriguing aspect of this study. Large businesses have learned how to manage by operating sustainably and with consideration for the environment. Five prominent Indian pharmaceutical companies have been analyzed using GRI 2011 standards based on revenue considering the findings of the 2022 sustainability report.

Research design

Selection of companies

India ranks third in the world in terms of pharmaceutical manufacturing capacity and is one of the top producers of antibiotics worldwide [16]. These five eminent Indian businesses produce and sell a wide variety of medications both domestically and abroad. A review of five leading Indian pharmaceutical companies was carried out in the current research, and the sustainability reports of these companies for the year 2022 have been selected according to net profits as per market capitalization. Five companies namely Sun Pharmaceutical Industries Limited (net profit-

3,389 cr.), Divis Laboratories (2,960 Cr.), Dr. Reddy's Laboratories, (2,182 Cr.), Cipla, (2,547 Cr.), and Biocon Limited (772Cr.) have been selected for the study.

Assessment of sustainability reports using the numerical scoring system

The three sustainability pillars of economic, environmental, and social sustainability are divided into aspects, which are subsequently organized into performance indicators (Figure 1). For formulating determinations about dimensions, a numerical scoring methodology has been developed. Each performance indicator has been given a score between (0) and (3) points, with a maximum score of 252 points, following the format and concept of prior scoring system indicators included in the GRI 2011 Guidelines. It has covered 9 for the economy, 30 for the environment, and 45 for social sustainability, considering only the impact on the economy, environment, and society.

The 84 performance indicators of the GRI 2011 Guidelines have been divided as follows- 9 for the economic, 30 for the environmental, and 45 for the social dimensions. Following the format and logic of the previous scoring systems, a score of 0 to 3 points (a maximum score of 252 points) has been given to each performance indicator. The numerical highlights of the sustainability report are- if there is no specific indicator -0, if a short overview of any particular indicator is available-1, if there is detail about any specific indicator, but only for one year -2, if there is any in-depth information about any particular indicator comprising two years or more-3 has been given.

Figure 1 displays a general depiction of GRI 2011 recommendations along with the top scores for each dimension.

➤ Blue ovals are used in three different dimensions.

➤ Blue rectangles are the sub-dimensions.

➤ Green bubbles are the number of aspects.
➤ Yellow bubbles are the number of indicators.

➤ The purple color is the maximum score in each dimension

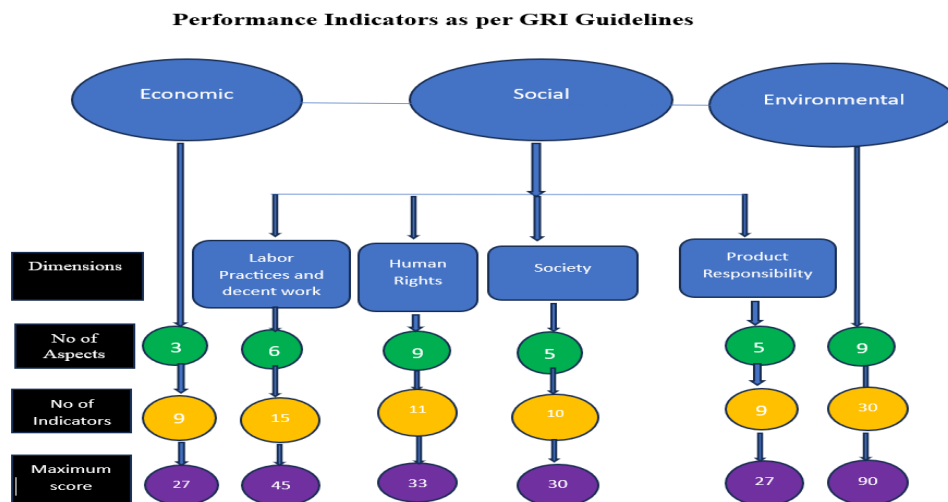


FIGURE 1 The GRI guideline 2011 with a range of dimensions, aspects, and performance indicators

Figure 1 conceptually displays the GRI guideline 2011 with a range of dimensions, aspects, and performance indicators. The maximum score, which ranges from Zero (0) to Three (3), is the highest numerical number that can be derived from the entire indication.

Results and discussion

The economic dimension includes three components, including market presence (local employing rules), economic performance, and indirect economic consequences (infrastructure, innovation, and industry). The economic dimension has a total of 9 indicators. The nine aspects of the environmental dimension are as follows: antimicrobial resistance (reduce the amount of antibiotics in wastewater by implementing suitable wastewater treatment technologies), biodiversity (habitats protected), water (decrease water consumption and increase the share of recycled and reused water), waste (increase the waste proportion that is recycled or channeled towards co-processing

methods), and energy (energy saving initiatives and increased proportion of renewable energy).

There are 30 indicators in all for the environmental dimension. The four subdimensions of the social dimension are human rights, society, product responsibility, labor practices, and decent work. Employment, labor relations, workplace health and safety, training and education, equal opportunity, and equal wages are six areas covered by labor practices and decent work. The nine aspects of human rights are as follows: the prohibition of discrimination, access to health care, child labor, freedom of association and collective bargaining, salaries and working hours, leave benefits, and safety training. The five facets of the society include improving public health, education, response to COVID-19 patients, patient support/medical help, clean water and sanitation. The patient's health and safety, product and service labelling, marketing communication, patient privacy, and compliance are five areas under the heading

of product responsibility. Table 1 indicates the numerical pointing of sustainability reports.

To learn about the sustainability practices of five prominent Indian pharmaceutical companies, this study has examined all of the sustainability reports based on the score acquired in the findings section of the study. Shareholders, investors, and other stakeholders will benefit both directly and indirectly when deciding on the activities of their companies in this field based on the analysis of sustainability reports supported by this scoring methodology. The rating of sustainability reports represents the most crucial and the most challenging work in the study [17].

Reports of Sun Pharmaceutical Industries, Divi's Laboratories, Dr. Reddy's Laboratories Limited, and Cipla have disclosed all the indicators out of 9 indicators. On the other hand, reports of Biocon Limited have not disclosed 1 indicator out of 9 indicators. Cipla and Biocon Limited have not disclosed a highest of 10 social indicators out of 45 in their reports. In the environmental dimension, a highest of 11 out of 30 indicators were not shown by the reports of Biocon Limited. However, Divi's Laboratories have not reported only 5 environmental indicators (Table 1).

TABLE 1 The overall number of indicators on various dimensions that the attempted companies It did not include in their sustainability report.

Dimensions	Total no. of Indicators	Sun Pharmaceutical Industries Limited	Divis Laboratories	Dr. Reddy's Laboratories	Cipla	Biocon Limited
Economic	9	0	0	0	0	1
Environmental	30	7	5	8	5	11
Social	45	8	8	7	10	10
Total	84	15	13	15	15	22

TABLE 2 Scores of different companies based on performance indicators of GRI

Dimensions	Sun Pharmaceutical Industries Limited	Divis Laboratories	Dr. Reddy's Laboratories	Cipla	Biocon Limited
Economic (27) *	15(56)	19(93)	17(63)	16(59)	15(56)
Environmental (90) *	70(78)	43(92)	32(36)	47(52)	31(34)
Social (135) *	95(70)	83(61)	97(72)	51(31)	92(68)
Total (252) *	180 (72)	145(58)	146(58)	114(45)	138(55)

The percentage of the overall score is shown in the bracket .

*The highest rating for each sustainability criterion.

Economic dimension

The overall study of the sampling sustainability reports revealed that social and environmental indicators were reported less in detail than the economic dimension. This investigation showed that Indian businesses need to enhance their comprehensive reporting on sustainability by GRI standards

because they aren't sufficiently dealing with issues related to society and the environment. The maximum score achieved by Divi's Laboratories in the economic dimension is 93%. Sun Pharmaceutical Industries and Biocon Limited had the lowest score, 56%. In the environmental dimension, Divi's Laboratories scored 92% and in the social dimension, Dr. Reddy's Laboratories scored

the highest of 72%. The lowest score achieved by Cipla is 31% in the social dimension. If we see the overall score of the five pharmaceutical companies, the highest score has been achieved by Sun Pharmaceutical Industries Limited which is 72%. This shows Divi's Laboratories and Dr. Reddy's Laboratories have a strong dedication on the part of social and environmental reporting (Table 2).

Divis Laboratories and Cipla have reported a highest score in economic performance which is 75%. They have disclosed 9 performance indicators out of 12 indicators (Table 3). Sun Pharmaceutical Industries Limited, Dr. Reddy's Laboratories, Cipla and

Biocon Limited have disclosed all the 6 economic impact indicators and achieved the score 100%. Sun Pharmaceutical Industries, Divis Laboratories and Cipla have reported the highest score, which is 70% out of 27 indicators of Economic performance, market presence and economic impact. These pharmaceutical companies have reported well in procedure for local hiring, direct economic value generated and invested in the development of industry, innovation and infrastructure (Table 3). The lower variation of the indicators performance shows that all the chosen businesses are actively working to maximize profit.

TABLE 3 Scores for the economic aspects of various companies based on GRI performance metrics

Aspects	Sun Pharmaceutical Industries Limited	Divis Laboratories	Dr. Reddy's Laboratories	Cipla	Biocon Limited
Economic performance (12) *	8 (67)	9 (75)	8 (67)	9 (75)	7 (58)
Market presence (9) *	5 (56)	6 (67)	3 (33)	4 (44)	5 (55)
Economic impact (6) *	6 (100)	4 (67)	6 (100)	6 (100)	6 (100)
Total (27) *	19 (70)	19 (70)	17 (63)	19 (70)	18 (67)

Value in the bracket denotes the percentage of the overall score in the relevant economic dimension.

*The highest possible score for economic dimension.

Environmental dimension

Sun Pharmaceutical Industries have achieved the highest score, 76% in waste, energy, water, biodiversity, antimicrobial Resistance, product and services, compliance, transport, and overall economic dimension out of 90 indicators. Divi's Laboratories Limited has

scored the lowest score which is 41% (Table 4). Most of the selected companies have taken into account environmental performance indicators including waste, energy, water, transport, compliance, product, and service emissions. However, biodiversity and antimicrobial resistance components were not disclosed in detail.

TABLE 4 Scores for the environmental aspects of various companies based on GRI performance metrics

Aspects	Sun Pharmaceutical Industries Limited	Divi's Laboratories	Dr. Reddy's Laboratories	Cipla	Biocon Limited
Waste (6) *	6 (100)	5 (83)	6 (100)	6 (100)	5 (83)
Energy (15) *	15 (100)	7 (47)	11 (73)	11 (73)	10 (67)
Water (9) *	8 (89)	7 (78)	9 (100)	8 (89)	7 (78)
Biodiversity (15) *	11 (73)	3 (20)	5 (33)	7 (47)	5 (33)
Antimicrobial Resistance (30) *	15 (50)	7 (23)	6 (20)	6 (20)	5 (16)
Product and services (6) *	6 (100)	5 (83)	5 (83)	6 (100)	4 (67)
Compliance (3) *	2 (67)	1 (33)	1 (33)	1(33)	0 (0)
Transport (3) *	3 (100)	1 (33)	1(33)	1(33)	1(33)
Overall (3) *	2(67)	1 (33)	1(33)	1(33)	1(33)
Total (90)	68 (76)	37 (41)	45(50)	47 (52)	38 (42)

Scores for the environmental aspects of various companies based on GRI performance metrics

Value in the bracket denotes the percentage of the overall score in the relevant environmental dimension.

* The highest possible score for environmental dimension

Social dimension

Sun Pharmaceutical Industries Limited and Biocon Limited have the 100% commitment on labor health and safety. However, this company needs improvement in other aspects of social dimension such as employment, labor relations, training and education to the labors, equal opportunity, and all amount of salary to the men and women employees. Biocon Limited needs improvement in the aspect of labor training and education (Table 5).

Sun Pharmaceutical Industries Limited has achieved the highest score in overall human rights aspects such as non-discrimination, freedom of association, and collective bargaining, child labor, access to healthcare services, leave benefits, and safety training. However, it requires improvement in safe and healthy workplace, wages and working hours, data privacy, etc. (Table 5). Dr. Reddy's

Laboratories and Biocon Limited have scored the lowest which is 22% only in the aspect of safe and healthy workplace. Dr. Reddy's Laboratories and Cipla have scored 100% in the aspects of access to healthcare services, Leave benefits, and safety training. However, majority of the companies have disclosed a short overview on the human rights aspects and received the lowest score (Table 5). Sun Pharmaceutical Industries Limited, Dr. Reddy's Laboratories and Cipla scored maximum in COVID-19 response (Table 5).

Divis Laboratories and Dr. Reddy's Laboratories have not disclosed report patient support and medical assistance. However, Divis Laboratories has a strong commitment to the safe and healthy workplace for its employees. Dr. Reddy's Laboratories and Cipla have not disclosed reports on patient privacy and scored less. Sun Pharmaceutical Industries, Divis Laboratories and Cipla have

scored 100% in patient health and safety. Cipla has scored 100% in product and service labelling. Biocon requires more improvement in marketing communication as it scored less as compared to other pharmaceutical companies (Table 5).

TABLE 5 Scores of labor practices and decent work performance, Human Rights performance, society, and product responsibility performance under social dimension based on GRI performance indicators for various companies

Labor practices and decent work performance					
Aspects	Sun Pharmaceutical Industries Limited	Divis Laboratories	Dr. Reddy's Laboratories	Cipla	Biocon Limited
Employment (12) *	8 (67)	7 (58)	8 (67)	8 (67)	7 (58)
Labor Relations (6) *	4 (67)	3 (50)	4 (67)	5 (83)	6 (100)
Labor health and safety (12) *	12 (100)	11 (92)	10 (83)	11 (92)	10 (83)
Training and education (9) *	7 (78)	8 (89)	5 (56)	6 (67)	3 (33)
Equal opportunity (3) *	2 (67)	1 (33)	1(33)	1(33)	1(33)
Equal weight of salary to both women and men (3) *	2 (67)	1 (33)	1(33)	1(33)	1(33)
Human Rights Performance					
Safe and healthy workplace (9) *	5 (56)	9(100)	2(22)	3 (33)	2(22)
Non- discrimination (3) *	3 (100)	2(67)	2(67)	3 (100)	2 (67)
Freedom of association and collective bargaining (3) *	3 (100)	3(100)	1(33)	3 (100)	3 (100)
Child labor (3) *	3 (100)	2(67)	1(33)	2(67)	1(33)
Access to healthcare services (3) *	3 (100)	2(67)	3 (100)	3(100)	2(67)
Data privacy (3) *	1(33)	2(67)	2(67)	2(67)	1(33)
Wages and working hours (3) *	1(33)	1(33)	1(33)	1(33)	1(33)
Leave benefits (3) *	3 (100)	1(33)	3(100)	3(100)	1(33)
Safety training (3) *	3(100)	1(33)	3(100)	3(100)	1(33)
Society					
Enhancing community health (9) *	8 (89)	4 (44)	5 (56)	6 (67)	7 (78)
Education (9) *	8(89)	6 (67)	8 (89)	8 (89)	4 (44)
Covid-19 response (6) *	6(100)	4 (67)	6(100)	6(100)	3 (50)
Patient support/medical assistant (3) *	2 (67)	0	0	1 (33)	1 (33)
Clean water and sanitation (3) *	1 (33)	1 (33)	1 (33)	1 (33)	1 (33)
Product Responsibility Performance					

Patient health and safety (6) *	6(100)	6(100)	5 (83)	6(100)	4 (67)
Product and service labelling (9) *	8 (89)	7 (78)	8(89)	9(100)	2 (22)
Marketing Communication (6) *	4(67)	3 (50)	2 (33)	2 (33)	1 (17)
Patient Privacy (3) *	1(33)	1(33)	0	0	1(33)
Compliance (3) *	1(33)	3(100)	1(33)	1(33)	2(66)

Value in the bracket denotes the percentage of the overall score in the relevant social dimension.

*The highest possible score for social dimension (labor practices and decent work aspect)

*The highest possible score for social dimension (Human Rights aspect)

* The highest possible score for social dimension (Society aspect)

* The highest possible score for social dimension (Product responsibility aspect)

Conclusion

On an international scale, especially in India, sustainability reporting is becoming more and more popular among businesses due to its multitude of benefits and advantages. The development towards greater corporate adoption of sustainability reporting has been better with each passing year. A pharmaceutical company may gain from effective reporting by positioning itself as a socially and environmentally responsible corporation. By adopting the evaluation approach employed in the study to assess sustainability reports based on the numerical grading system constructed from several performance indicators to identify prospective reporting strengths and weaknesses, they can strengthen their reporting in the specific dimension, aspect, and indication. If sustainability reports were based on a scoring system of multiple performance indicators, stakeholders could understand how a company's operations and efforts on sustainability-related issues. In addition, it helps corporations themselves because it enables them to be judged on how well their reporting procedures promote successful stakeholder communication. It also makes it possible to compare reported performance to that of peers and helps discover potential reporting strengths and weaknesses in this relatively new type of

reporting. This study only partially succeeded in evaluating five sustainability reports from top Indian pharmaceutical companies. There is a need for improvement, particularly about environmental and social concerns. The GRI 2011 criteria were followed by Sun Pharmaceutical Industries Limited (one of the five pharmaceutical companies), in their comparably satisfactory disclosure of a sustainability report that included various performance indicators in the economic, environmental, and social dimensions. In this study, the most significant disadvantage is the limited sample size of pharmaceutical companies it covered. A long-term examination could be explored. This study is limited only to the Indian healthcare sector. To continue the investigation of various performance indicators of sustainability reports and to expand on the findings of the current study, future studies may choose diverse organizations and regions as the study samples. This study will aid in the promotion of the healthcare industry's reputation by providing key information on reporting procedures and summarizing the advancements that have been made in the particular area of corporate accountability. In addition, companies in the healthcare sector will have the ability to evaluate and assess their performance in terms of economic, environmental, social, and governance

aspects. This study will allow pharmaceutical companies to refine their objectives and values, and create plans and goals that align with those needs. It will also enhance the industry's sustainability and effectiveness which aids in better management.

Future research on the study's implications might look into sustainability in healthcare utilizing a structured questionnaire, which will help to obtain even more information. Furthermore, this could aid in bridging the gap between quantitative and qualitative methods. This makes it possible to validate the paradigm using the current research on sustainability in healthcare. This type of study can be expanded to include more service areas and organizations.

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Authors' Contributions

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Conflict of interest

This study is the contribution of the authors who do not have any conflict of interest as such with any other individual or institution.

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