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Review Article

**ROLE OF MARKETING RESEARCH FOR NEW DRUG
DEVELOPMENT WITH DEMOGRAPHIC SEGMENTATION &
SOCIO-PSYCHOLOGICAL CHARACTERISTICS OF
CUSTOMERS IN PHARMACEUTICAL SECTOR**¹Aamani D. Meesala, ¹Rajashree V. Lode, ¹Sagar Gour Mondal¹Hi-Tech College Of Pharmacy, Chandrapur.**Article Received:** March 2023**Accepted:** April 2023**Published:** May 2023**Abstract:**

It is clear that market research is vital when developing your market strategy. It provides great insights to your business and on the wider market place. Product research is a vital part of new product development. At every stage of process, research can help you identify key issues and avoid expensive mistakes. When developing a product strategy, market research can help you get a better understanding of your consumer. A market segmentation strategy will give you better focus, minimise waste and free up resources. It also involves the segregation of target customers into various groups according to their unique characteristics. The process allows pharmaceutical brands to gain a better knowledge of customer needs.

Keywords: Marketing Research, Demographic Segmentation, Hypothesis.

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INTRODUCTION:

Marketing Research is the systematic and objective search for, and analysis of, information relevant to the identification and solution of any problem in the field of marketing.

The key words in this definition are; systematic, objective and analysis. Marketing research seeks to set about its task in a systematic and objective fashion. This means that a detailed and carefully designed research plan is developed in which each stage of the research is specified. Such a research plan is only considered adequate if it specifies: the research problem in concise and precise terms, the information necessary to address the problem, the methods to be employed in gathering the information and the analytical techniques to be used to interpret it.

Marketing research involves following a systematic sequence of steps that will produce reliable and valid data. Through analysis and interpretation, the data are transformed into information suitable for decision-making purposes by managers. Typically, data alone are simply not usable. It is the analysis and interpretation of the data that makes them useful to managers.

A major goal of marketing research is to provide information that managers can use to make better decisions. In this particular case, research can be used to gain a better understanding of how advertising influences the millennial generation and what can be done to increase advertising's effectiveness.

Market research comes in many forms, and you are never short of options. In its simplest form, market research is about creating a process to gather information, collecting data, and drawing answers and insights from the information. Although the processes, data collection methodologies, and analysis differ from project to project, the core definition holds: track, analyse, and act.

Market research is structured and purposeful. It is the systematic and objective collection and interpretation of data to help reduce risk in marketing decisions. Market research is the map by which businesses can navigate. In the same way that maps can be large or small scale, market research can be high level or detailed. Market research can provide useable information needed to support management decisions.

Marketing research may be conducted internally by the firm's marketing department or performed

externally by a marketing research firm. The information gathered is then used to make decisions related to the marketing mix or other marketing functions. The marketing mix is the specific combination of product, pricing, promotional, and distribution decisions made for the purpose of targeting a particular group of consumers.

Some of the more common marketing uses of research information include market segmentation, identifying specific target markets and their media habits, analysing consumer behaviour and needs, tracking customer satisfaction, developing new products, and evaluating various forms of advertising executions and pricing tactics. But, the use of marketing research information is not limited to just the marketing department. It can be used by all levels of management to make decisions that impact other aspects of a firm's operation. It can guide top management in making strategic decisions about acquisitions, divestitures, and expansion. It can be used by middle managers to develop production schedules, purchase raw materials, develop departmental budgets, and determine appropriate staffing levels.

Brief history of marketing research:

The first documented instance of marketing research was in 1879 and was conducted by the advertising agency N. W. Ayer. The company surveyed state and local officials about expected levels of grain production. This information was used by a manufacturer of farm equipment in the preparation of an advertising schedule. From that first beginning marketing research slowly evolved. The basic foundation of marketing research was developed during the first 30 years of the 20th century. The first textbook on marketing research was published in 1921, and the first marketing research courses taught on college campuses occurred in the 1930s.

The early years of marketing research focused on methods of sampling, collecting data, and analytical techniques. Researchers also focused on ways to measure concepts such as opinions, perceptions, preferences, attitudes, personalities, and lifestyles. The primary goal of marketing research at that time was to measure marketing phenomena and consumer characteristics. Raw data were converted to information, which was then passed on to managers to make decisions.

The period of the 1970s and 1980s is often referred to as the "golden age of consumer research." During this time marketing research techniques became more scientific. Computing power made collecting and

analysing data faster, easier, cheaper, and more accurate. Companies invested substantial dollars into marketing research to better understand the market, the consumer, and the decision process. During the late 1990s and early 2000s a cultural shift in marketing research began to occur. Decision makers wanted more than support for marketing decisions. They wanted marketing researchers to offer insights into what the data meant. Simply describing potential markets, characteristics of consumers, and the decision process was no longer sufficient. Decision makers wanted insights into why particular choices were made by consumers and how the results of a marketing research study could provide a better understanding of the best strategies and tactics. Marketing researchers were no longer just data providers. They were to assist in providing insights into marketing situations. Some marketing researchers believe we are now beginning to enter another, newer phase of marketing research—the consultative stage. Just providing insights may no longer be enough. Managers want marketing researchers to be part of the solution, to provide input and direction into marketing decisions. For traditional marketing researchers, this is a challenge. They were trained and educated in data analysis. Now, they are being asked to assist in developing marketing strategy.

FUNCTIONS OF MARKETING RESEARCH:

Marketing research serves four primary functions within an organization.

a. The exploratory function of marketing research occurs when researchers have a limited understanding or no knowledge at all about a marketing situation or a particular outcome. For example, a company may be losing customers or sales may be declining, but managers are not sure why. Marketing research can be used to explore some of the possible causes of lost sales or customers.

b. Marketing research often serves a descriptive function, which refers to the gathering and presentation of information about a marketing phenomenon or situation. For example, marketing research can be used to describe the primary consumer of a product, such as a Panasonic High Definition Television or a John Deere tractor. It can be used to describe the process a customer uses in deciding on a restaurant for dinner, such as Romano's Macaroni Grill or Outback Steakhouse.

c. The diagnostic function of marketing research is particularly helpful in many situations. Here, data analysis techniques are used to investigate

relationships and phenomena within data that have been gathered through marketing research. The diagnostic function is important to marketers because it allows marketers to discover interrelationships with data.

d. The predictive function of marketing research allows data to be used to predict or forecast the results of a marketing decision or consumer action. Retailers use predictive research to determine what items a consumer is likely to purchase together so suggestive selling can be used. Marketing research can be used to estimate the impact of a coupon or another sale promotional offer. It is often used to estimate the market share of a brand extension or new product introduction.¹²

PURPOSE OF MARKET RESEARCH:

a. The Purpose of Market Research is to Verify Market Need:

Markets come in all shapes and sizes. To correctly position itself in any one industry, a company must understand who needs a product and why they need it. It must understand when and where people buy certain things and how they use them. The size and diversity of a consumer base will necessarily dictate the ways in which a company attempts to meet its demand. Thus, companies must conduct market research, asking questions so that the answers can shed light on the direction they need to go.

b. The Purpose of Market Research is to Identify Competitors:

Of course, competition is always a concern in any market. Market research helps businesses identify other players in the game (as well as those who might be waiting on the side lines). Knowing who you're playing against is vital to planning a strategy for defeat in any situation. In a business one, it helps companies position themselves; they can copy the practices that work for others and disregard the ones that don't.

c. The Purpose of Market Research is to Improve Company Offerings:

Market research also helps businesses create offerings that either fill a void or provide better value than those already available. This helps companies manage their valuable resources, saving their time and money for only those offerings best suited to favourable outcomes.

d. The Purpose of Market Research is to Satisfy Customers:

In essence, it could be argued that customer satisfaction is the ultimate goal of market research.

Satisfied customers are happy ones because their needs have been met. If a business's number one goal is to maintain a profit and/or improve lives, then a happy customer is a good indication that it's doing that job well. Surveying customers provides the feedback companies need to maintain or adjust their practices in ways that satisfy the people they serve and build brand loyalty.⁶

TYPES OF MARKET RESEARCH:

There are two types of market research.

Primary market research is the process of collecting information which does not exist elsewhere. It involves creating a custom study to obtain new information rather than compiling data from existing sources. This can often be referred to as "field" research and involves gathering new data, first-hand, that has not been collected before.

Secondary market research is something referred to as "desk" research and involves gathering data that has already been compiled and organized for you. It includes reports, government funded studies, textbooks, historical records and statistical databases.

As opposed to reviewing demographics from a customer database, primary research would be fielding a new survey to your customers asking new questions to collect information your organization does not already have.

Applied Research Versus Basic Research:

Marketing research can be either applied or basic. Applied marketing research is designed to solve a specific marketing problem, to investigate a particular marketing phenomenon, or to understand the results of previous decisions.

Basic marketing research is more theoretical in nature and is conducted to advance marketing knowledge in general or to verify a proposed marketing theory or concept. Findings from basic research studies cannot be implemented by managers in the short run. This is because basic research is typically not conducted in the context of a particular brand or firm, or for the purpose of solving a specific marketing problem or exploiting an opportunity facing a given brand or firm.



FIG 1: NEED OF MARKETING RESEARCH

MARKET RESEARCH:

Marketing research can be concerned with any of a variety of aspects of the market: the product, sales, buyer behaviour, promotion, distribution, pricing, packaging, etc. Since the researcher cannot

investigate everything about a market, he/she must be selective. The question remains as to how the researcher decides where to focus the study, and to what depth each issue should be investigated. The answer should lie in a document called the research

brief. The research design is a set of guidelines given to the researcher by the person(s) who have commissioned the research and/or the individual(s) who are to make use of the results in their decision making. The brief must inform the researcher should include:

- The purpose of the research.
- The objectives stated in a clear, concise, attainable, measurable way.

WHY IS PHARMACEUTICAL MARKET RESEARCH IMPORTANT?

No matter how much companies in the pharma industry invest into a new drug development or how innovative the drug is, it becomes completely ineffective if the drug does not satisfy the needs of the target audience. Pharmaceutical market research provides insights into the demands in the target market and how to enhance the overall healthcare market experience. Pharma market research also helps in:

- Understanding the market and competition

- Targeting the right customers
- Designing a unique value proposition
- Determining the most profitable market strategy
- Testing the product efficacy
- Tracking the drug cycle

If you look to any successful business product, service, or concept, you will find market research. It is an integral part of operations, marketing, and strategy for all organizations.

Conducting market research and surveys eliminate risk and increase your chance of success. Market research can help you answer critical business questions facing your organization, such as:

- Are our customers satisfied? What are they dissatisfied with that would cause them to churn or go to a competitor?
- Which markets nearby offer the greatest chance of success for our expansion?
- What marketing offers us the best Return Of Investment? Where should we place our budget?

MARKET POTENTIAL:

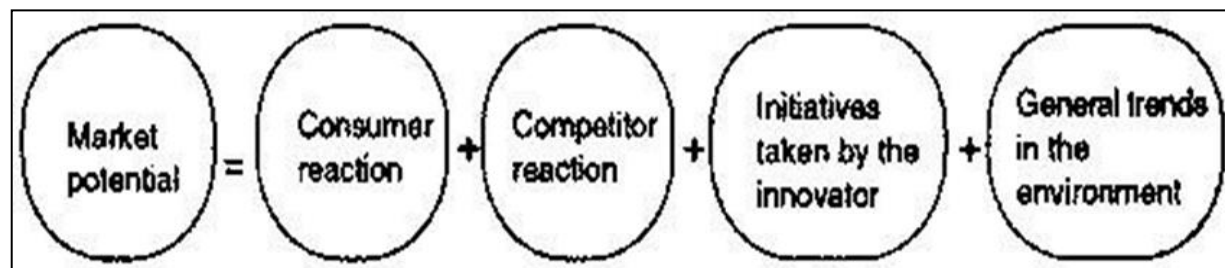


FIG 2: MARKETING POTENTIAL

OVERVIEW OF THE MARKETING RESEARCH PROCESS:

Figure 3. illustrates the typical research process. It starts with understanding the research purpose, which stems from a need to understand a situation, an opportunity, or a particular problem being experienced by a firm or brand. Managers often confuse symptoms with problems, so it is up to the market researcher to persistently investigate or question management until the true problem is understood and the research purpose is clearly identified

Research Purpose:

Market research is conducted with a specific purpose in mind. The research purpose might be to gain a better understanding of a situation or phenomenon, to investigate an opportunity, or to understand or address one or more problems that may be negatively impacting the firm.

Having received the research brief, the researcher responds with a research proposal. This is a document which develops after having given careful consideration to the contents of the research brief. The research proposal sets out the research design and the procedures to be followed. The eight steps are set out. These are only briefly discussed and consists of a detailed explanation of each step.

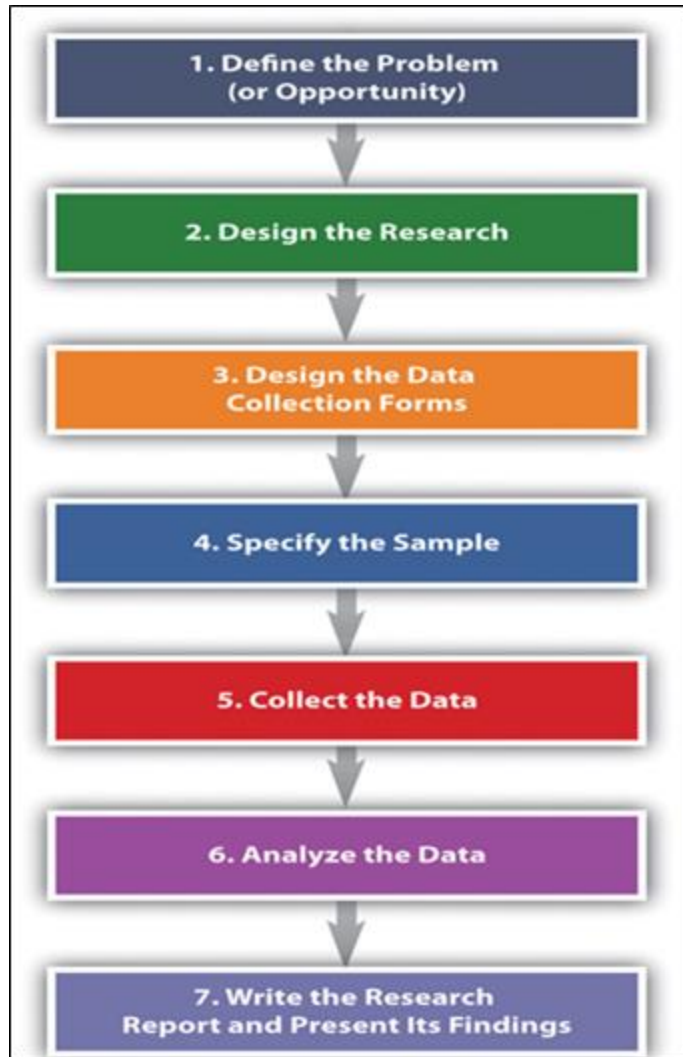


FIG 3: STEPS IN RESEARCH PURPOSE

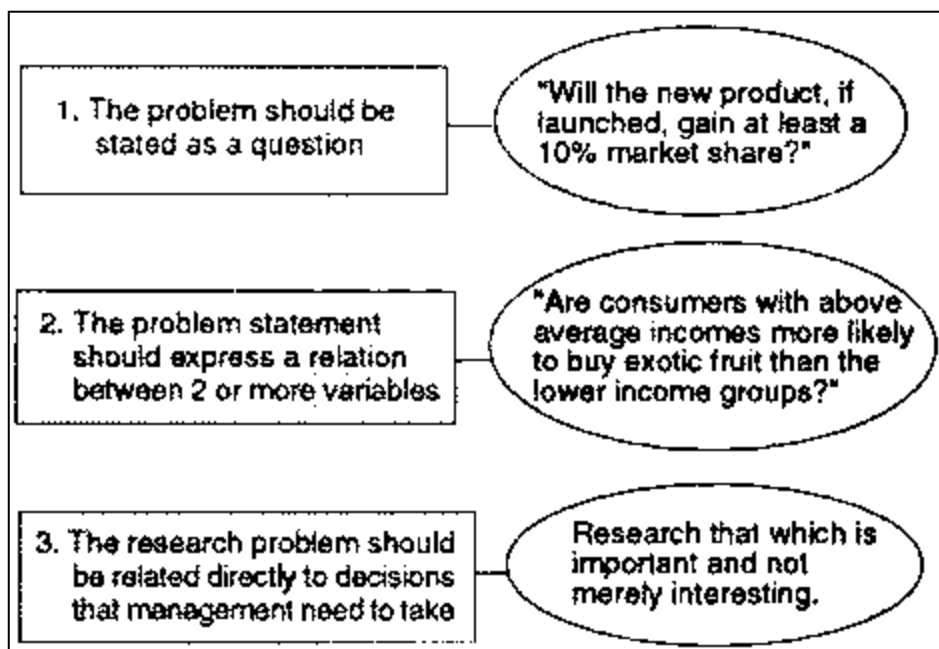
Step 1: Problem definition:

The point has already been made that the decision-maker should clearly communicate the purpose of the research to the marketing researcher but it is often the case that the objectives are not fully explained to the individual carrying out the study. Decision-makers seldom work out their objectives fully or, if they have, they are not willing to fully disclose them. In theory, responsibility for ensuring that the research proceeds along clearly defined lines rests with the decision-maker. In many instances the researcher has to take the initiative.

Step 2: Hypothesis generation:

Whilst it is true that the purpose of research is to address some question, nonetheless one does not test research questions directly. For example, there may be interest in answering the question: "Does a person's level of education have any bearing upon whether or not he/she adopts new products?" Or, "Does a person's age bear any relation to brand loyalty behaviour?". Research questions are too broad to be directly testable. Instead, the question is reduced to one or more hypotheses implied by these questions.

Example: Characteristics of a sound definition of the research problem:



A hypothesis is a conjectural statement regarding the relation between two or more variables. There are two key characteristics which all hypotheses must have: they must be statements of the relationship between variables and they must carry clear implications for testing the stated relations. These characteristics imply that it is relationships, rather than variables, which are tested; the hypotheses specify how the variables are related and that these are measurable or potentially measurable. Statements lacking any or all of these characteristics are not research hypotheses.

Hypotheses are central to progress in research. They will direct the researcher's efforts by forcing him/her to concentrate on gathering the facts which will enable the hypotheses to be tested. The point has been made that it is all too easy when conducting research to collect "interesting data" as opposed to "important data". Data and questions which enable researchers to test explicit hypotheses are important. The rest are merely interesting.

There is a second advantage of stating hypotheses, namely that implicit notions or explanations for events become explicit and this often leads to modifications of these explanations, even before data is collected.

Step 3: Decision on type of study:

Marketing research can be carried out on one of three levels: exploratory, descriptive, causal, predictive.

Four types of marketing research study:

i. Exploratory research: The chief purpose of exploratory research is to reach a better understanding of the research problem. This includes helping to identify the variables which should be measured within the study. When there is little understanding of the topic it is impossible to formulate hypotheses without some exploratory studies. Exploratory research is intended to help researchers formulate a problem in such a way that it can be researched and suggest testable hypotheses.

Exploratory research will give your insight as to whether you should launch a new product or rethink your original idea. This type of research is beneficial when you're first finding product-market fit, but also when you want to further understand the gaps in your market as you plan new product feature releases. The main objective of this type of research is to understand the needs of your target demographic and the market at large. Once you identify the needs, then you also identify opportunities for you to introduce new products into the market.

Exploratory research is often used in the first stage of a more comprehensive research study. In addition to shedding light on the problem, exploratory research can provide clues as to the variables that should be studied. Additional types of research can then be used to determine the relationships among variables and any cause-and-effect relationships that may exist.⁵ Exploratory research can provide information that can be used to develop hypotheses. A research hypothesis states an expected research outcome

relevant to one or more variables that seems reasonable in light of existing information.

ii. Descriptive research: As the name implies, descriptive research answers the questions who, what, when, where, and how in describing the characteristics of consumers, brands, and other marketing phenomena. In contrast to exploratory research, marketers who use descriptive research already have a good understanding of the marketing problem or situation.

Descriptive research is concerned with describing market characteristics and/or marketing mix characteristics. Typically, a descriptive study specifies the number and size of market segments, the alternative ways in which products are currently distributed, listing and comparison of the attributes and features of competitive products, etc. this type of

study can involve the description of the extent of association between variables.

The principal difference between exploratory and descriptive research is that, in the case of the latter, specific research questions have been formulated before the research is undertaken. When descriptive research is conducted the researcher must already know a great deal about the research problem, perhaps because of a prior exploratory study, and is in a position to clearly define what he/she wants to measure and how to do it.

iii. Causal research:

Causal research deals with the "why" questions. That is, there are occasions when the researcher will want to know why a change in one variable brings about a change in another. If he/she can understand the causes of the effects observed then our ability to predict and control such events is increased



FIG 4: TYPES OF MARKETING RESEARCH

iv. Predictive Research: Predictive research is a marketing technique that involves using data analytics to determine which marketing strategies and actions have the highest probability of succeeding.

Step 4: Decision on data collection method:

The next set of decisions concerns the method(s) of data gathering to be employed. The main methods of data collection are secondary data searches, observation, the survey, experimentation and consumer panels.

Step 5: Development of an analysis plan:

Those new to marketing research often intuitively believe that decisions about the techniques of analysis to be used can be left until after the data has been collected. Such an approach is ill-advised. Before interviews are conducted the following checklist should be applied:

- Is it known how each and every question is to be analysed? (e.g. which univariate or bivariate descriptive statistics, tests of association, parametric or nonparametric hypotheses tests, or multivariate methods are to be used?)

- Does the researcher have a sufficiently sound grasp of these techniques to apply them with confidence and to explain them to the decision-maker who commissioned the study?
- Does the researcher have the means to perform these calculations? (e.g. access to a computer which has an analysis program which he/she is familiar with? Or, if the calculations have to be performed manually, is there sufficient time to complete them and then to check them?)
- If a computer program is to be used at the data analysis stage, have the questions been properly coded?
- Have the questions been scaled correctly for the chosen statistical technique? (e.g. a t- test cannot be used on data which is only ranked)

There is little point in spending time and money on collecting data which subsequently is not or cannot be analysed. Therefore, consideration has to be given to issues such as these before the fieldwork is undertaken.

Step 6: Data collection:

At this stage the researcher is ready to go into the field and collect data. The various issues relating to data collection constitute the main body of the text and therefore, are not dwelt upon here. 8

Step 7: Analysis of data

The word 'analysis' has two component parts, the prefix 'ana' meaning 'above' and the Greek root 'lysis' meaning 'to break up or dissolve'. Thus, data analysis can be described as:

"...a process of resolving data into its constituent components, to reveal its characteristic elements and structure."

Where the data is quantitative there are three determinants of the appropriate statistical tools for the purposes of analysis. These are the number of samples to be compared, whether the samples being compared are independent of one another and the level of data measurement. 10

Step 8: Research Report

Once the analysis is complete, it is time to write the research report. The purpose of the report is to present the research findings. But, in preparing the report, the intended audience of the report should guide how it is prepared.

Executives tend to be extremely busy and do not have time to read long, lengthy reports. They prefer reports that summarize the findings of the research and have clear, succinct conclusions and recommendations.

The report should begin by stating the research purpose, problems, questions, or hypotheses. This should be followed by a description of the methodology that includes how the sample was chosen and then how the data were collected.

Having received the research brief, the researcher responds with a research proposal. This is a document which develops after having given careful consideration to the contents of the research brief. The research proposal sets out the research design and the procedures to be followed. These are only briefly discussed and consist of a detailed explanation of each step.

ROLES OF MARKETING RESEARCH:

Market research involves a process of collecting, analysing, and interpreting data about a target market. This market may include consumers, products, competitors, or an industry at large. The reason that companies conduct market research is to optimize the time, money, and resources they invest in product development efforts. They may also conduct research to find their product-market fit or expand their target audience.

Not only can market research help you figure out your product-market fit, but market research can help identify areas where you can grow. When enacting a strategy, you need to consider how your product will address the market demand or your existing customers' needs.

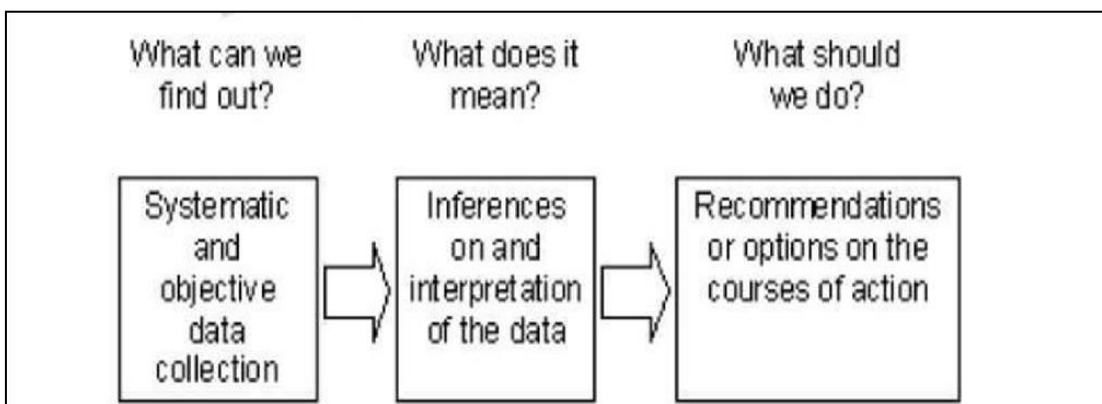


FIG 5: THE ROLE OF MARKET RESEARCH

Marketing research has been very rightly described as the 'radiology and pathology' of marketing operations; like a radiologist who provides an X-ray, the market researcher gives a natural picture of business position, like a pathologist presenting his reports to the physician, the marketing researcher provides the executives with up-to-date report that guides the executive in sound judgment.

A market researcher, like a doctor, can describe the situation of ill-health and prescribe the remedies. Marketing research is of particular importance to manufacturers, distributors, advertising agencies and the government.

Each stand to benefits to the extent one depends on this managerial tool because, it has the power of problem solving and decision-making.

Manufacturers and Marketing Research:

Every agile manufacturer is expected to design the most matching policies and marketing strategies. A policy is the guiding principle established by the firm to govern the actions usually under repetitive conditions.

Strategy, on the other hand, is a kind of plan formulated basically to meet the challenges of special circumstances. It is a counter plan to kill the plans of competitors.

Framing and Implementing Product Policies:

Marketing research solves effectively the problems in the areas or activities of product policy formulation and implementation. These product policies are related to product development, determination of product-line, purchase of inputs, inventories, location and layout of plant, production planning and control, plant maintenance, control of waste, quality and cost, finance and personnel. It implies that marketing research has its hands in each and every aspect of

manufacturing so that the manufacturer would design and implement his product policies, yielding best results.

Designing and Executing Marketing Strategies:

Marketing strategy is the dynamic, action-packed and all-pervasive plan to achieve business goals. A successful manufacturer is one who brings about an optimal adjustment of controllable and uncontrollable factors. The current market conditions are such that the manufacturers have to be market oriented.

Therefore, all their efforts are reconciled to the needs, moods and the pockets of consumers. A manufacturer can control the factors like product price promotion and distribution as they are internal to the firm.

There are uncontrollable factors like markets technological developments economic and social environment and governmental regulations which are external to the firm. It is the ability of the manufacturer to manipulate the internal factors and respect the external ones that make or mar the fortune of his.

Thus, marketing research is almost indispensable in planning and executing the marketing strategies because, it collects, analyses and interprets the relevant data thus, reinforcing the hands of the decisionmaker in making sound and timely decisions to kick the threats and kiss the opportunities.

Distributors and Marketing Research:

Though production has the pride of place in any economic system, distribution becomes still more important because, production has no meaning unless it is made to absorb by markets through marketing efforts. 10

Advertising Agencies and Marketing Research:

Advertising agency does the work of planning and placing of ads created, copy-testing, media selection, assessment of ad effectiveness and so on. They do render a valuable service like consultation, research, planning of incentive campaign plans for salesmen and dealers, merchandising and the like.

As marketing research is one of the major services rendered by advertising agencies, each such agency has an independent marketing department. 10

Government and the Marketing Research:

Today's states are no more 'police' states but 'welfare' states. That is why; modern governments have turned commercial to prove their worth in protecting the legitimate interests of consumers at large.

This type of research includes:

- Awareness of the product or need for the product
- The current level of satisfaction with existing products
- Improvements that can be made in the current products
- New features or products that customers would be interested in Needs that are not being met by current offerings
- The buyer persona: who is interested in this product?

You can also gain valuable insights into your customer's decision-making process and buying habits. Why do they choose particular products, and why/how do they use it? What are their pain points that cause them to use this type of product? By conducting a base-level of market research, you will be able to answer these very important questions.

When developing a product strategy, market research can help you get a better understanding of your consumer, your competition, and the market as a whole. Gaining valuable insights allows you to develop a better product and a strategy for promoting it in the market.

Market research gives you the tools you need to develop and define a successful product strategy while meeting or exceeding your business goals. By conducting and leveraging market research, you and your team will be able to create a product strategy that will help you gain a competitive advantage.

Marketing Research and Segmentation

The primary objective of conducting marketing research is to support marketing decisions. Managers will never have perfect knowledge, and as a result

there will always be some uncertainty in choosing a course of action. But, through marketing research, the amount of uncertainty can be reduced, allowing the manager to be more confident the correct or best decision is being made. Marketing research plays a role in a number of marketing areas, are:

- Segmentation and targeting
- Product Development

A. Segmentation and Targeting

Marketing research provides essential information for decisions on segmentation and targeting. Benefit and lifestyle studies examine the similarities and differences consumers seek in products and how these benefits fit into particular lifestyles. This information is then coupled with target market analysis, which provides basic demographic, geographic, psychographic, and behavioural information about specific target markets. From these research studies, marketers can decide which segments best match the features of their brands. Details such as usage patterns, attitudes, preferences, and lifestyles will allow a company to make better segmentation and targeting decisions.

B. Product Development

Marketing research is used in all stages of product development. Research can be used in the concept stage to gather customer input on ideas for a new product or modifications of a current product. Product testing studies identify how a product fits the needs of consumers and what changes need to be made to the product to make it more attractive. Test markets can be conducted to provide information on how well a new product or product modification will do before the product is launched. Modifications and decisions that will increase the probability that the new product will be successful can be made based on the results of the test market.¹

ROLE OF MARKETING RESEARCH FOR NEW DRUG DEVELOPMENT:

Drug development is the process of bringing a new pharmaceutical drug to the market once a lead compound has been identified through the process of drug discovery. It includes preclinical research on microorganisms and animals, filing for regulatory status, such as via the United States Food and Drug Administration for an investigational new drug to initiate clinical trials on humans, and may include the step of obtaining regulatory approval with a new drug application to market the drug. The entire process – from concept through preclinical testing in the laboratory to clinical trial development, including

Phase I–III trials – to approved vaccine or drug typically takes more than a decade.

Drug development is a significant challenge. Every product must not only be safe and efficacious, but its efficacy has also to be proven across racial and ethnic

groups as well as across different age groups. Every drug has to pass a global regulatory review in what is currently the most regulated industry in the world. Once this is done, approved products must appeal to global markets across different cultures, healthcare systems and distribution systems.

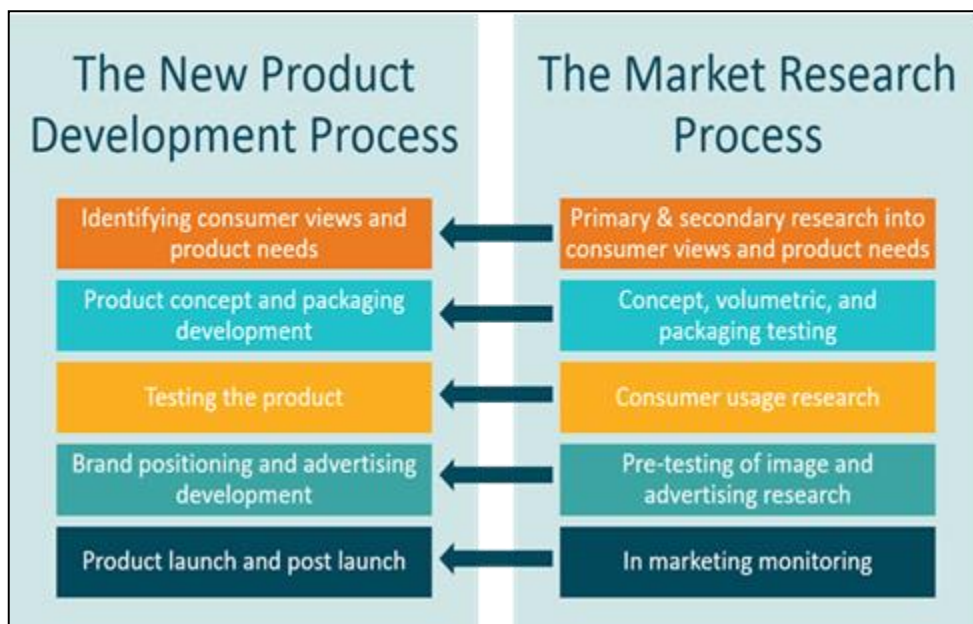


FIG 6: MARKET RESEARCH PROCESS FOR NEW PRODUCT DEVELOPMENT

The Drug Development Life Cycle, Its Role in Pharma Sector:

The drug development life cycle is vital to delivering safe and effective drugs. But the pharmaceutical industry must work together to combat major challenges throughout the process.

There are five steps in the drug development process, according to the FDA.

- a. The first step is discovery and development. In this step, researchers examine new insights into a disease process, which allows them to design a product to stop the effects of the disease. Then, they test molecular compounds to find possible beneficial effects against certain diseases.
 - Researchers discover new drugs through existing treatments and new technologies as well. Then, they conduct experiments to gather information on how the drug is absorbed, distributed, metabolized, and excreted.
 - They also discover its potential benefits and mechanisms of action, the best dosage, the best way to give the drugs, side effects of adverse events, how it affects different groups of people, how it interacts with other

drugs and treatments, and its effectiveness compared to other drugs.

- b. The second step in the drug development process is preclinical research, which includes in vitro and in vivo trials.
 - In the preclinical research step, drugs go through laboratory and animal testing to answer basic questions about safety, FDA explains.
 - In this step, FDA requires researchers to use laboratory best practices as defined in medical product development regulation to test safety.
 - These regulations include study conduct, personnel, facilities, equipment, written protocols, operating procedures, study reports, and a system of quality assurance oversight for each study.
- c. The third step is clinical research. This refers to studies or trial that are done in people.
 - Through clinical research, specific questions related to a medical product are answered. Through these answers, researchers decide who qualifies to participate, how many people will be a part of the study, how long the study will last, a control group, how the

drug will be administered, what assessments will be conducted, and how the data will be reviewed, FDA said.

- d. The fourth step of the process is the FDA drug review. First, a pharmaceutical company submits a New Drug Application, then FDA reviews the drug and approves or

rejects it. Finally, an FDA advisory committee provides their input.

- e. The last step in the drug development process is FDA post-market drug safety monitoring. This is where FDA reviews reports of problems with drugs and can decide to add cautions to the dosage or usage information, as well as other measures for more serious issues.



FIG 7: STEPS OF DRUG DEVELOPMENT

Drug development comprises all the activities involved in transforming a compound from drug candidate (the end-product of the discovery phase) to a product approved for marketing by the appropriate regulatory authorities. Efficiency in drug development is critical for commercial success, for two main reasons:

- Development accounts for about two-thirds of the total R&D costs. The cost per project is very much greater in the development phase, and increases sharply as the project moves into the later phases of clinical development. Keeping these costs under control is a major concern for management. Failure of a compound late in development represents a lot of money wasted.
- Speed in development is an important factor in determining sales revenue, as time spent in development detracts from the period of

patent protection once the drug goes to market.

Despite a high level of awareness in the pharmaceutical industry of the need to reduce the money and time spent on development, both have actually increased significantly over the last two decades. This is mainly due to external factors, particularly the increased stringency applied by regulatory authorities in assessing the safety and efficacy of new compounds.

NATURE OF DRUG DEVELOPMENT IN PHARMA SECTOR:

Drug development has a very clear-cut goal: to produce the drug in a marketable form, and to gain regulatory permission to market it for use in the target indication(s) as quickly as possible. The work required to do this fall into three main parts, respectively technical, investigative and managerial:

- Technical development – solving technical problems relating to the synthesis and formulation of the drug substance, aimed mainly at ensuring the quality of the end-product:

Main functions involved: chemical development, pharmaceutical development.

- Investigative studies – establishing the safety and efficacy of the product, including assessment of whether it is pharmacokinetically suitable for clinical use in man:

Main functions involved: safety pharmacology, toxicology, pharmacokinetics, clinical development.

- Managerial functions: Coordination – managing quality control, logistics, communication and decision making in a large multidisciplinary project to ensure high-quality data and to avoid unnecessary delays.

Main function involved: project management

- Documentation and liaison with regulatory authorities – collating and presenting data of the type, quality and format needed to secure regulatory approval. Main function involved: regulatory affairs.

ROLE OF MARKETING IN PHARMACEUTICAL RESEARCH AND DEVELOPMENT

The starting point is the ‘marketing concept’ as understood in the academic marketing literature. Put in more practical terms, the marketing ‘process’ encompasses market research to assess what consumers desire and are willing to pay for, consequent R&D to meet those desires, distribution of the products thus created, and the provision of persuasive information (via advertising, promotion, and other means including public relations) to those who purchase or influence the purchase of these products. This is not to say that such fundamental operations as R&D are simply components of marketing. Rather, marketing, properly understood, provides motivation and guidance to R&D.⁴

A. How Pharmaceutical Marketing Is Different?

Pharmaceutical marketing and its consequences are strongly affected by the unique environment in which pharmaceutical marketing takes place.

- Physicians as Gatekeepers
The most distinctive characteristic of pharmaceutical markets is the dominant role of physicians. This arises only partly from laws requiring that the most potent drugs can be purchased only with a physician’s

prescription. The physician is not merely a gatekeeper, but provides authoritative advice on the role of drug therapy in the treatment of illnesses and medical conditions.

Pharmaceuticals are increasingly governed by a dynamic network of federal, state, and local regulations in the US. The most important source of pharmaceutical regulation in the US, however, remains the Food and Drug Administration (FDA). The essential feature of FDA regulation is its comprehensiveness, covering clinical testing, new drug applications, manufacturing, supplemental new drug applications (new uses for old drugs), and, of course, prescription drug marketing and promotion.

B. Estimating Potential Demand:

The marketing process begins with the estimation of potential demand. Overall demand for new medical technology is immense. An immediate problem is estimating demand for products that do not exist or are strikingly different from existing products. This is a common problem in most markets, and numerous tools (such as stated preference surveys employing conjoint analysis or econometric methods such as logit) have been developed for estimating demand for new products. These tools tend to be crude but fast, and they gain their power from the fact that they are applied in situations where buyers are also users, and actual demand can be discovered incrementally as new product lines are introduced. This applies even to products involving health and safety, such as airbags.

C. Advertising and Promotion:

Advertising and promotion are, by design, the visible parts of marketing. These activities necessarily focus on information, because the pharmaceutical industry is largely an information industry. Pharmaceutical product characteristics mean very little without persuasive information on what a product actually does.

Promotion is likely to be especially valuable in pharmaceutical markets because information plays a dominant role, is highly technical and widely dispersed, and changes rapidly. We have seen the problems in physicians’ application of information about new drug treatments. Also important is the fact that consumers must sometimes take the initiative in seeking diagnoses and treatment, either because they have not described their symptoms to their doctors or because healthcare providers do not promote treatments whose benefits go almost entirely to patients rather than to the healthcare system. Consumer advertising can also be an effective tool for improving patient compliance with drug therapy.

This suggests that consumer welfare can be improved by promoting prescription drugs directly to consumers.

ROLE OF MARKETING RESEARCH FOR NEW PRODUCT DEVELOPMENT WITH DEMOGRAPHIC SEGMENTATION:

Demographic segmentation refers to the categorization of the target market based on specific variables like age, education, and gender. It is a type of market segmentation that helps businesses to understand their consumers better and meet their needs, effectively.

Demographic segmentation allows businesses to be more strategic and specific with marketing.

By breaking your target market into individual categories defined by demographics, organizations can come up with precise marketing campaigns for each group. This helps them to channel resources effectively and boost return on marketing investments.

Use of Demographic Segmentation?:

Without demographic segmentation, it is nearly impossible to understand what your customers want. Demographic segmentation helps organizations to categorize their widely varied customer base into smaller groups of individuals and appeal to their specific preferences.

With demographic segmentation, organizations can create personalized brand narratives that easily connect with specific segments of the target market to advertise and sell their product or service. Consumers easily identify with personalized brand narratives and are eager to patronize organizations that reflect this.

Demographic Segmentation Variables:

Age:

This is an important factor for market demographic segmentation because consumers' needs and preferences differ in line with their ages. That is, what appeals to individuals in a particular age group may not appeal to members of a different age group.

For instance, young adults typically favour digital marketing campaigns while older adults usually prefer traditional marketing methods. More than marketing strategies, knowing the age distribution of your consumers helps you to create products that appeal to them. Age segmentation can be done in terms of life cycle stages or generations. Life cycle segmentation includes specific age groups like babies, teenagers, and adults while generation stages include late bloomers, millennials, and generation.

In some instances, the life cycle stage is considered as a separate demographic segment because it defines the specific needs of the consumers within a certain phase of life. Examples include how toddlers desire certain meals and how adults wear certain clothing.

Gender:

The gender variable is another important demographic factor for market segmentation because individuals identify with different points in the gender spectrum like masculine or feminine, and this primarily affects their choices. Knowing the gender your product appeals to helps you to meet the needs of your consumers effectively.

Income:

Income levels also serve as an important demographic variable as it largely determines consumer choices and perception on pricing. Individuals with higher income levels may have an interest in purchasing ostentatious or highly-priced items while individuals with lower income levels may desire cheaper items.

Income levels of the target market also determine the product pricing as you do not wish to price yourself out of business. Organizations that deal with luxury items typically target high-income customers who they know can afford them and they price these items accordingly while organizations that trade in everyday items prioritize affordability

Educational Levels:

The levels of education of your consumers play an important role in your marketing strategy and product features. In advertising, for example, the educational level of the target market determines the manner and channels you adopt in passing across your message.

Also, the complexity of products and product features is largely determined by the educational level of the target market. Complex product features may not appeal to consumers with low to medium levels of education while extremely simple product features may fail to capture the interest of a highly-educated audience.

Religion, Race, and Ethnicity:

Religion influences the preferences of the target market and so, it is important to know the religious categorization of your target market. Racial and ethnic preferences and sentiments are also reflected in marketing campaigns and advertorials for products and services.

Occupation or Job-Type:

Occupation segmentation can also help divide groups of people into specific locations such as cities, suburbs, and rural areas and is sometimes combined with income segmentation.

Family Structure:

Societal family structures are important for demographic segmentation. In this sense, societies

with large families may desire low-income products that they can purchase in bulk while societies with smaller families and predominantly single people, may favour luxury purchases with flexible spending patterns.

Other demographic segmentation variables include Employment status, location, marital status, and household income

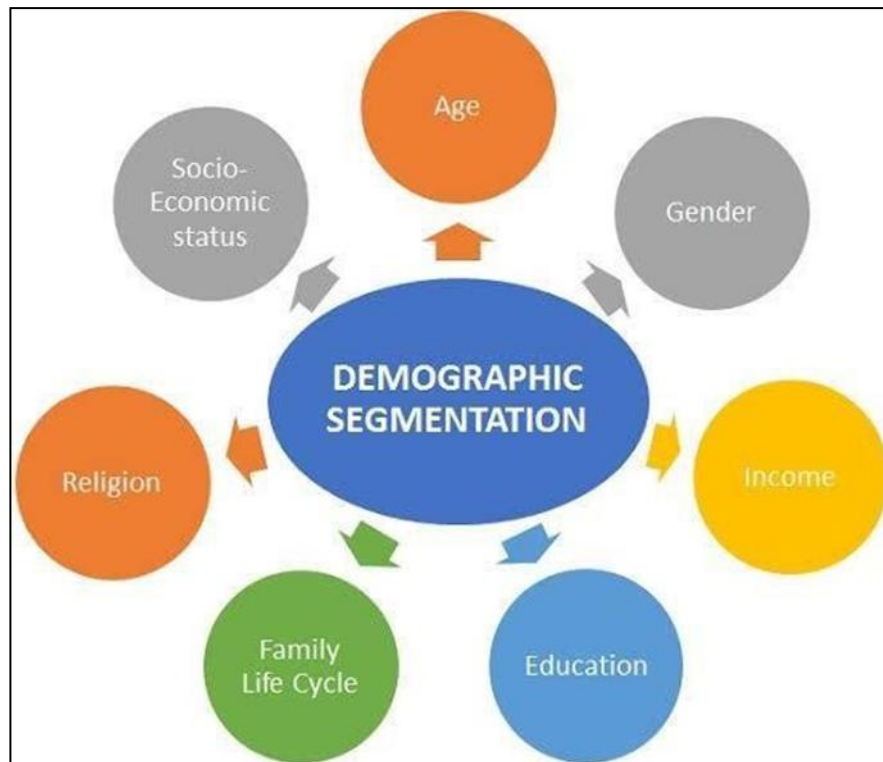


FIG 8: DEMOGRAPHIC SEGMENTATION VARIABLES

SUMMARY AND CONCLUSION:

It is clear that market research is vital when developing your market strategy. It provides great insights to your business and on the wider market place. Product research is a vital part of new product development. At every stage of process, research can help you identify key issues and avoid expensive mistakes. When developing a product strategy, market research can help you get a better understanding of your consumer.

A market segmentation strategy will give you better focus, minimise waste and free up resources. It also involves the segregation of target customers into various groups according to their unique characteristics. The process allows pharmaceutical brands to gain a better knowledge of customer needs.

Marketing is the most exciting of all business sports. It is continually changing in response to the explosion information, the expansion of technology, and the aggressiveness of competition, at all levels and everywhere. In terms of new product development, marketing is usually concerned with making the most of market opportunities by choosing the right price and understanding consumer needs. New product development ideas and prototypes are tested to ensure that the new product will meet target market needs and wants.

Demographic Segmentation is an excellent way to provide relevant and targeted messaging to potential customers and existing customers alike. The key for your business is identifying which demographic segments are most relevant to you.

Identifying psychographic segments allows you to gain valuable insights about your target market that other forms of segmentation do not cover, unlocking personal contributing factors to purchasing decisions.

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Conflicts of interest:

Authors have no conflicts of interest to declare.

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