

Summer training report

By

Shanaia kumar

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Shanaia Kumar

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Summer training report Part 1:- Research

Study on psychological impact of COVID-19 lockdown on Jaipur population

1. Introduction

COVID-19 is an infectious disease which effects mainly lungs was detected in 2019 in the Wuhan city china by far this was the largest outbreak happened .This new coronavirus with the symptoms of chills, fever, cough, sore throat, cough, breathing difficulty, nausea, vomiting and diarrhoea, the symptoms of COVID-19 can varies from no symptoms to severe pneumonia which can lead to death. The average incubation period of covid-19 is around 5.2 days. Studies on the COVID-19 till this point it had evidently shown that virus caused mild disease and around 78% of cases got recovered 15% were more severely diseased and 7% experience critical illness which lead to death and it has been reported that older men above 60 years with medical comorbidities are at higher risk and the transmissibility of the virus.

Due the high chance of infection through this virus India impose complete country lockdown on 25 March 2020 In this lockdown the public space were closed , people were restricted to came out of there house unless and until its very urgent ,so human to human interaction could be reduced and it could bring drop in the infection rate among the population The COVID -19 pandemic became a public health emergency which poses a non –ignorant challenge to psychology resilience and financial economy this virus altered everybody social life . During the lockdown only essential occupation were allowed that to without reduced man power and safety measures. At that time those who were working was really in a stressful situation as it involve lot of risk, fear and mental stress and those who were at their home was also going to fear of COVID -19 as well as the economic issues, the sudden change is there schedule and uncertainty of future were driving them crazy, handling of these kind of uncertain situation varies person to person, because of this uncertainty, constant fear we should think about the significant psychological impact of COVID-19.In this context , there will be a substantial increase in depression anxiety stress , substance use , domestic violence and substance abuse .However this psychological impact could varies across the different social group , the individuals who are staying alone or suffering from economic loss could be at a higher risk of anxiety and depression . Anxiety is the natural response of your body to stress. Every 3 person faces anxiety it's very normal and often considered as normal emotion. However If a person regularly started

feeling disproportionate level of anxiety then it can be considered as medical disorder, anxiety disorder is category of mental health that can be diagnose that leads to excessive nervousness, fear, apprehension and worry , this disorder however alter how a person processes emotions and behave also causing few physical symptoms . Mild anxiety might be vague and unsettling, while severe anxiety may seriously affect day-to-day living. They have few types for anxiety disorder: - **Generalised anxiety disorder, panic disorder, phobia, social phobia, separation anxiety disorder**, for this study the assessment will be over generalised anxiety disorder. Anxiety can lead to sleeping and eating disorder and due our altered routine stressful situation there is chance major impact on sleeping which can leads to insomnia, insomnia is a sleep disorder in which you have trouble falling or staying asleep, insomnia can be acute or chronic . It may also get normal after a while .acute insomnia can last upto 1 week to few weeks, chronic insomnia can last upto 3 nights a week to 3 months and more, there are two type of insomnia primary and secondary. **Primary insomnia** :-In primary insomnia sleep problem are not linked with any other health condition **Secondary insomnia** this means you have sleep issues because of your health condition . As we know India is family centric country and family plays vital role in times of crisis, we can't deny that having a social support could help in lowering the stress level, the mental health is very important as it ultimately impact our physical health. Previous famous studies have revealed that anxiety could lead to worse sleep disorder and eating disorders. All these points draw a concern to this issue therefore this study was conducted which aims the psychological impact of covid lockdown particularly about the anxiety and insomnia. This study also aims to covers the comparison across the various age, gender, working situation and place of residence.

For this study, survey was conducted through a questionnaire, this questionnaire includes couple of general questions and two assessment test for anxiety and insomnia. For anxiety Generalized anxiety disorder (GAD-7) was used, GAD-7 is generalised screening tool for anxiety The GAD-7 originates from Spitzer RL, Kroenke K, Williams JB, et al. The GAD -7 has a sensitivity of 89% and specificity of 82%. Sleep disorder questionnaire from Stanford healthcare is included in the survey questionnaire to screen the insomnia among the population.

Research objective

To study the psychological impact of COVID -19 lockdown among the population of age group 15-60 years residing in Jaipur

To study the prevalence of anxiety and insomnia among the population of age group 15-60 years residing in Jaipur

To study that whether there is difference in the prevalence among the various age groups, gender, working conditions

2. Methodology

To access the psychological impact of covid-19 (Anxiety and insomnia) Cross sectional survey design was used. The data was collected online (anonymous) survey platform as per the government rules and recommendation to minimize the face to face interaction, the identification of the responded was kept confidential

Data collection

The data was collected by online survey method. A pretested questionnaire was develop using google form and it consist of the close handed questions. The data was collected by using random stratified sampling technique through virtual channels like linked in, social media. The population under the study were told and explained about the purpose of research in order to get their consent through the passage mentioned in the google form. The data collected by online survey questionnaire method was analysed and interpreted statistically. Excel software was used to analyse the data

Inclusion criteria

- Any gender
- People who are residing in Jaipur
- People of the age group of 15-60 years

Exclusion criteria

- Person who is already suffering from any psychological disorder

Data source

- Primary data : - Through online survey conducted on the google form platform
Questionnaire:-<https://forms.gle/zztU4FJgZj7eeWgH9>
- Secondary data

Type of research design

Cross sectional study design is used for this particular research

Sample size

Jaipur has a population of around 3812000 people so it's not realistically possible to the entire group, therefore we need to use right sample size, for this particularly study the confidence interval would be 95% and margin of error would be 7%, the standard deviation would be .5 as it will make sure that the sample size is large enough. The Z score for 95% CI would be 1.96 .so **according** to the sample size formula [Sample Size = $(Z\text{-score})^2 * StdDev * (1-StdDev) / (\text{margin of error})^2$] The accurate sample size would be 196

Therefore I have collected 196 response and excluded 9 of them as per the exclusion criteria the sample size 187

3. Analysis and interpretation

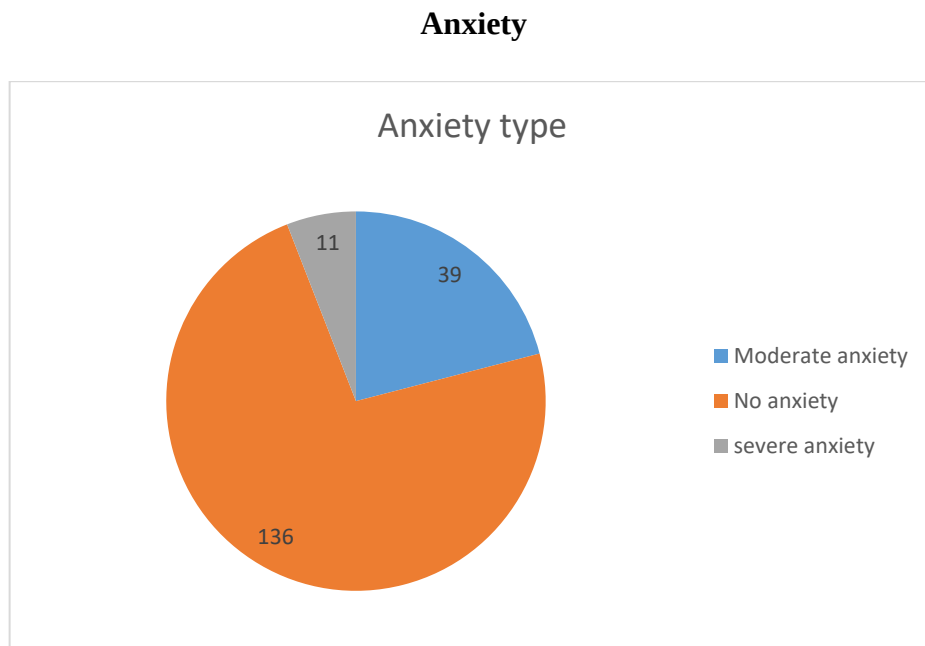
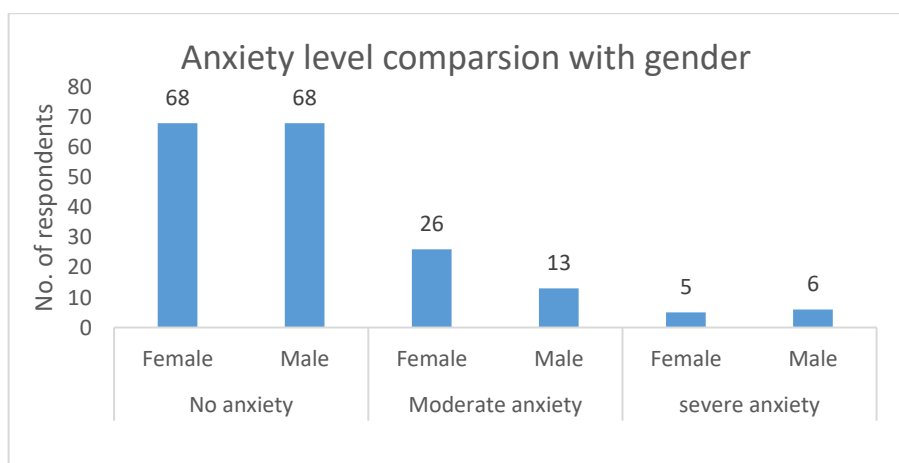


Figure 1 reveals that almost 136 respondents i.e. almost 73.11% doesn't have any anxiety issue but 39 respondents i.e. 20.96% are suffering from moderate anxiety (moderate anxiety is just a severe version of mild anxiety but in moderate anxiety person tends to focus on that situation which is making him or her feel anxious, still a person can functional socially) and 11 respondents i.e. 5.19% of them are suffering severe anxiety (severe anxiety is known as generalised anxiety disorder which includes persistent and excessive amount of worrying and anxiety about the issue or event



In figure 2 the graph reveals that the female who are suffering anxiety are 31 i.e. 32% and female respondents who are not suffering from anxiety are 68 respondents 68% whereas

male respondents who are suffering from anxiety are 19 respondents i.e. 21.8% and those who are not suffering from anxiety are 68 respondents i.e. 78.2%, it indicates that females are more prone to anxiety as compared to male, the possible reason could be that females are more sensitive towards the low level of corticotropin releasing factor (CRF) ,this hormone organise the stress related response in humans making female more vulnerable in anxiety disorder

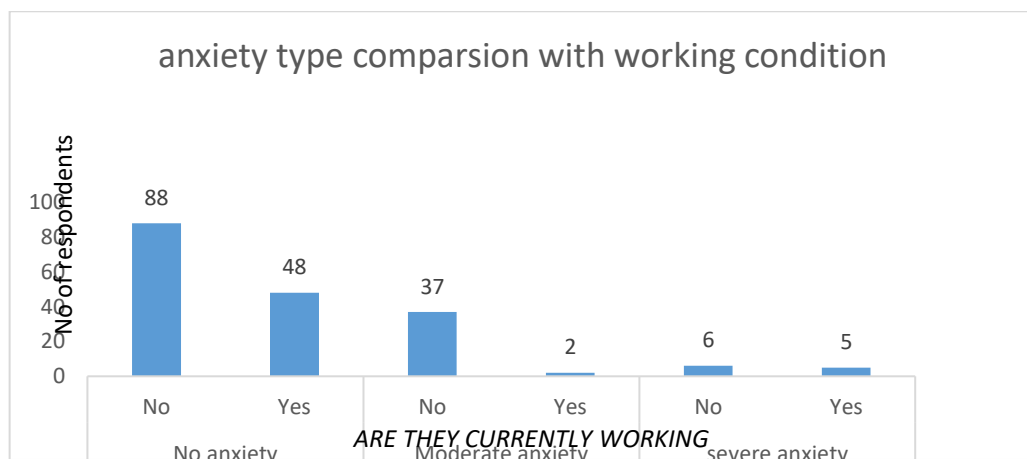


Figure 3 depicts the relation of anxiety with the working condition whether the people who are at their home are more vulnerable to anxiety or those who are working are more in stress. As the figure 3 show that 37 respondents 94.8% who are suffering from moderate anxiety were at home during lockdown (they were not working) whereas only 2 respondents i.e. 5.12% respondents where working and in the case of severe anxiety 54.5% of respondents where at home (not working) and 45.5% were working, this value draws a result that respondents who were at home during lockdown were more prone to anxiety as compared to respondents who were working during lockdown

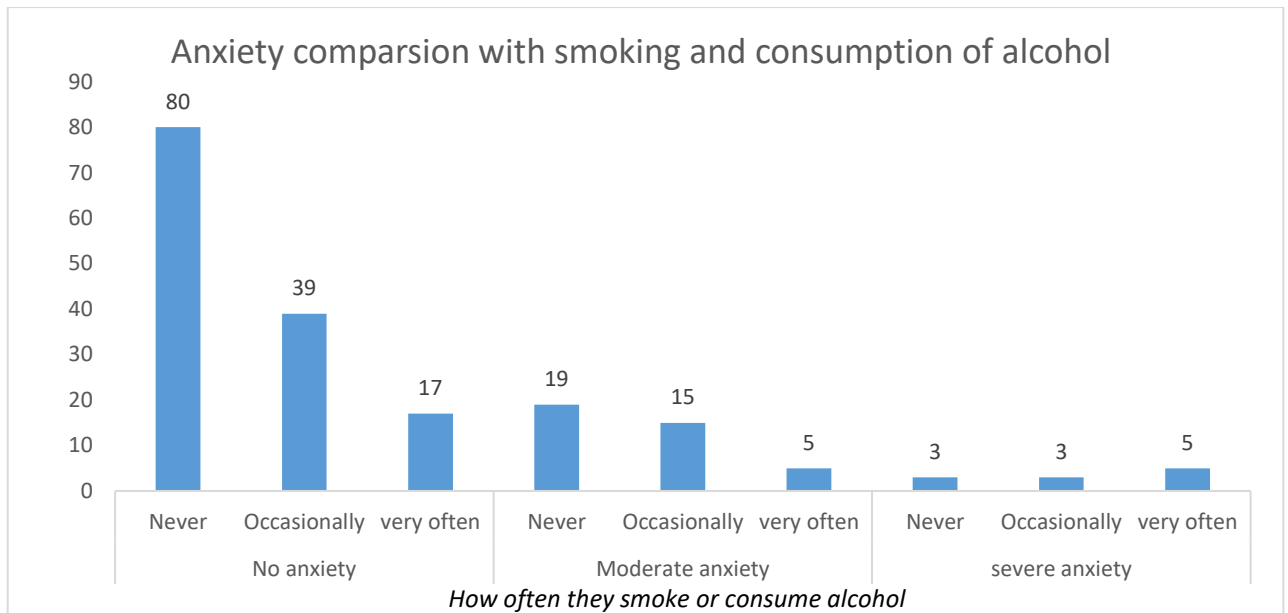


Figure 4 depicts the relation between how often the respondents smoke or consume alcohol and there anxiety level, respondents who are suffering from moderate anxiety out of them 19 i.e. 48.71% Never smoked or consumed alcohol before lockdown and 20 i.e. 51.28% respondents do smoke or consume alcohol on occasional basis or on regular basis In the case of severe anxiety 3 i.e. 27.72% Never consumed alcohol or smoked and 8 respondent i.e. 72.27% of respondents do smoke or consume alcohol. The possible reason could be that during lockdown liquor shops were closed hence people could experience anxiety as a part of withdrawal symptoms.

Insomnia

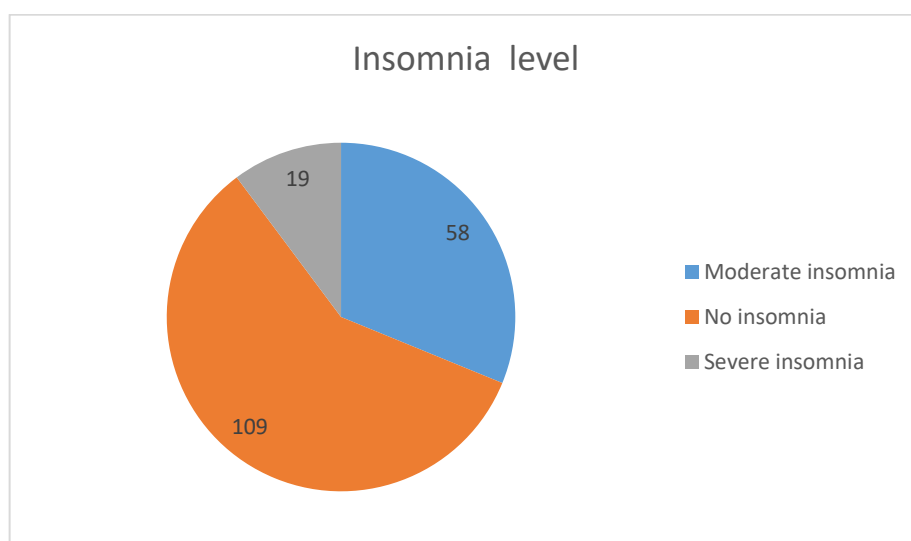


Figure 5 reveals the prevalence of the insomnia among the respondents, 109 i.e. 58.6% of respondents does not suffer from insomnia, 58 respondents i.e. 31.1% are suffering from moderate insomnia whereas 19 respondents i.e. 10.21% are suffering severe insomnia (severe insomnia is long term difficulty in falling or initiating usually insomnia is considered chronic when person faces trouble falling in sleep for at least three night per week for three months or longer

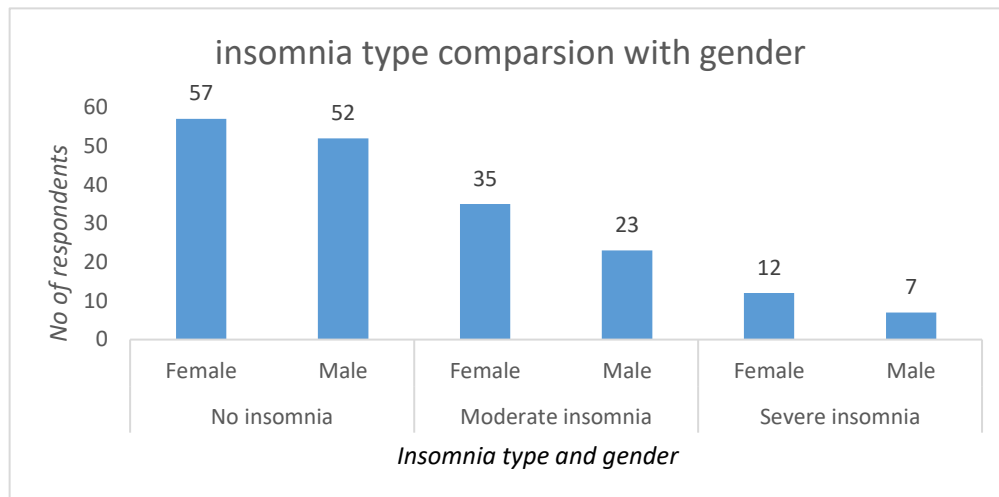


Figure 6 shows that female suffering from moderate insomnia are almost 56.89%, at the same time male suffering from moderate insomnia are almost 43.10% and female suffering from severe insomnia are almost 63.15% and male suffering from severe insomnia are almost 36.84. This figure statistics reveals that female are more vulnerable of insomnia as compared to male may be a possible explanation would be the hormonal changes experienced by females

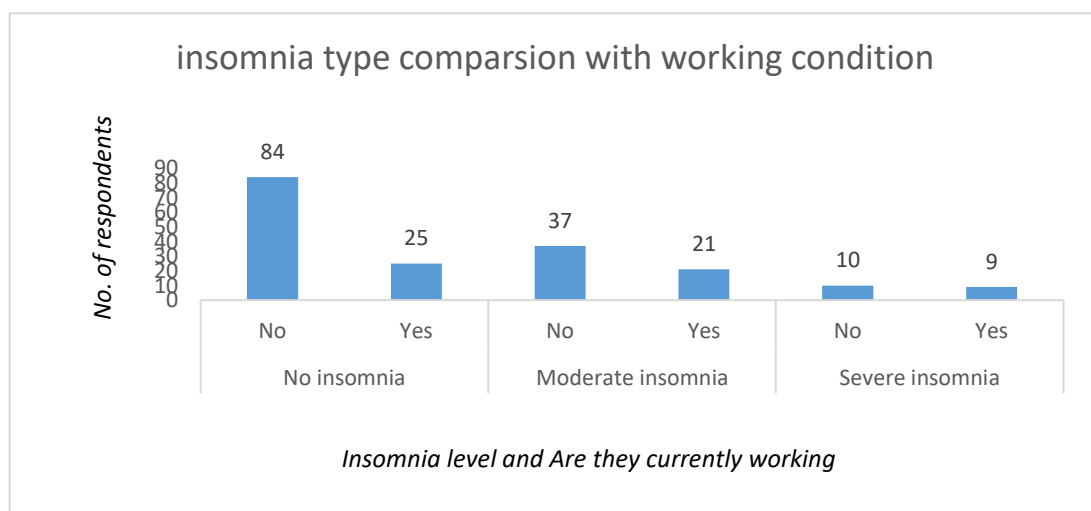


Figure 7 draws the comparison between the respondents who are currently working and respondents who are suffering from insomnia, as the data reveal respondents who are suffering from insomnia and are staying at home is almost 61.03% and respondents who are suffering from insomnia and are currently working are almost 38.9%

In the case of moderate insomnia respondent who are suffering from moderate insomnia and staying at home are 63.7% and who are suffering from moderate insomnia and currently working are 36.2%

In the case of severe insomnia respondent who are suffering from moderate insomnia and staying at home are 52.6% and who are suffering from moderate insomnia and currently working are 47.4%

This states that people who are at home during lockdown are more likely to suffer from insomnia as compared to people who are working

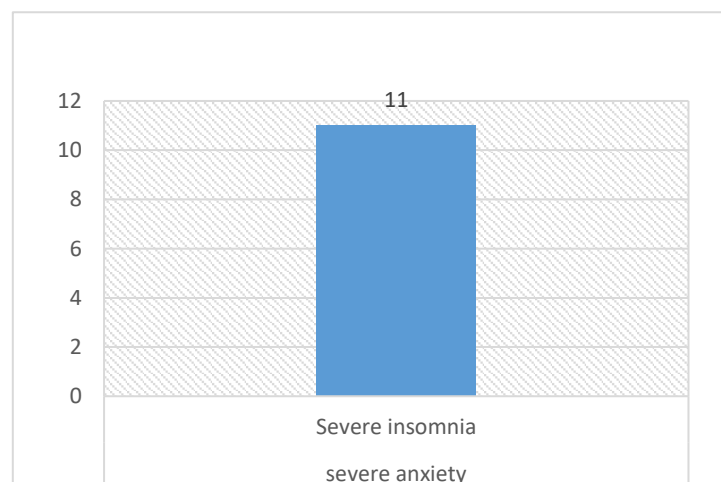


Figure 8 reveals two things

- That almost 5.19% of respondents are suffering from both severe anxiety and severe insomnia
- There are 5.19% of respondents suffering from anxiety and the same respondents are suffering from severe insomnia

4. Conclusion

This study concludes that lockdown have a Psychological impact on Jaipur population, due to lockdown and constant COVID -19 fear people are becoming more vulnerable to anxiety and insomnia, as to be gender specific female are more Prone to anxiety and insomnia , anxiety is been categorised in three different types :- No anxiety , moderate anxiety and severe anxiety . The prevalence of moderate anxiety is 20.96% and 5.19% of severe anxiety, insomnia is also been categorized into No insomnia, moderate insomnia and severe insomnia and the prevalence of moderate insomnia 31.1% and severe insomnia be 10.2%

This study also reveals that respondents who stayed at home were more prone to anxiety and insomnia which lead to huge impact in there day to day schedule and anxiety causes some serious sleep issues Therefore as a result of this study it shows that those 11 respondents who are suffering from severe anxiety are suffering from severe insomnia too.

As during this lockdown alcohol shops were closed and this study depicts too that respondents who use to smoke or consume alcohol prior then lockdown were more vulnerable to anxiety because of the withdrawal symptoms

Recommendations

Keep a regular daily schedule:-As due to COVID-19 our regular schedule I almost disturbed which leads to our alteration in our eating and sleeping patterns so it's very important to keep a regular schedule, keep building yourself personally and professionally

Engage yourself in an activity that “fills your mind” and “crowds out” anxious thoughts: - if you sit idle thousands thoughts would come up and overthinking is bad in anyways

Tele consultations with psychologist should be promoted so people can reach out them easily: - At this point of time people are not willing to go for a consultations therefore using virtual platform for consultation is best

5. References

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SUMMER TRAINING REPORT PART 2

Online course report

Course name: - Quality improvement in healthcare organisation

Course description:

This course is offered by Rutgers the State University of New jersey, platform Coursera structured along a duration of 4 weeks that constitute in 14 hours and segmented into various topics.

Module no.	Week	Hours
Lesson 1 Definition of Quality and quality improvement in healthcare	Week 1	4 Hours 15 Min
Lesson 2 Quality and Quality improvement in Healthcare organisations	Week 2	3 Hours 5 Min
Lesson 3 Data collections and analysis methodologies for quality and QI	Week 3	3 Hours 15 Min
Lesson 4 Design a Healthcare Organisation Quality Improvement Program	Week 4	4 hrs
Total hours		14 Hours 35 Min

The introductory week of the course focused on upon the definitions of quality and quality improvement in healthcare organization. Various frameworks are described in the quality improvement programs which are based on six domains of healthcare organizations which can be used to improve the quality of the healthcare delivery system. The course also provides focus on healthcare dedicated /multi industrial quality and quality improvement organizations and lastly focusing on the types of quality improvement measures used in a healthcare organization.

The 2nd week focuses on the medical quality measures in healthcare organization for improvement or reporting to external organizations. It also focuses on the quality measures likely for reimbursement or not. There is also focus on the quality improvement measures on different sectors of healthcare such as dental, pharmacy and healthcare insurance.

The 3rd week of course focuses on the types of quality data in healthcare organization and its documentation so that it helps in better understanding of quality improvement programs. Methodologies involved in the data collection and analysis can be decided on measures and data to be collected. There are seven quality tools which help to visually represent the positive causes for a quality problem situation which helps to focus on improvement. The inclusion of check sheet helps to track the specific quality programs whilst control charts are used to monitor quality in healthcare organization to help visualize the distribution of data set. The course also details on the different tools to help visualize the distribution of data set.

The final week of the course provide a real-world simulation on creating a spreadsheet as a healthcare provider and provide information on ways to generate an effective spreadsheet as well as judge the quality of it.

Course objectives:

1. To help understand the quality and quality improvement in healthcare organizations.
2. To help contribute better to the efficient and effective processes of quality improvement within a healthcare organization.
3. To undertake administration and management responsibilities related to quality and quality improvement processes within the organization.
4. To know about the various frameworks of quality improvement in the healthcare organizations.

Course content

1. Lesson One: Definition of Quality and Quality Improvement in Healthcare Organizations
2. Lesson two : Quality and Quality Improvement Measures in Healthcare Organizations

3. Lesson three: Data Collection and Analysis Methodologies for Quality and Quality Improvement Measures in Healthcare Organizations
4. Lesson Four: Design a Healthcare Organization Quality Improvement Program

Learning methodology:

Reading material, videos and assignments

Key learning of course

WEEK 1

TOPIC 1: - DEFINITION OF QUALITY IN HEALTHCARE ORGANISATIONS

Health care quality is degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.

Healthcare organization quality is the degree to which the health care delivered by the healthcare organization consistently reflects current professional knowledge/standards while meeting the patient/customer personal health outcome expectations/requirements.

Medical error is defined as an unintended act (either of omission or commission) or one that does not achieve its intended outcome, the failure of a planned action to be completed as intended (an error of execution), the use of a wrong plan to achieve an aim (an error of planning), or a deviation from the process of care that may or may not cause harm to the patient.

Medication error is defined as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labelling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use.

Defensive medicine is defined as a situation in which a doctor practices medicine, either through diagnosis or treatment, not to help the patient, but rather to prevent legal action if a problem occurs.

Definition of quality improvement

Quality Improvement in healthcare organizations is the systematic and continuous actions that lead to measurable improvement healthcare organization quality; that is, systematic and continuous actions that lead to measurable improvement in the degree to which the health care delivered by the healthcare organization consistently reflects current professional knowledge/standards while meeting the patient/customer personal health outcome expectations/requirements.

QI is a slightly different concept than **Quality Assurance (QA)**. QA is the process of ensuring that each and every organizational product and service meets the quality standard set for it; that is, a product/service of consistent quality is delivered each and every time.

TOPIC: - 2 HEALTHCARE ORGANISATION QUALITY IMPROVEMENT FRAMEWORKS / MODELS

Every Quality Improvement (QI) program includes a focus on:

- The operation of the healthcare organization as a system.
- Patient/customer exceptions/requirements.
- The need for everyone in the healthcare organization to work as a team.
- Collecting and analysing both qualitative and quantitative data to track quality.

These focus areas (characteristics) can be incorporated into a variety of different types of quality improvement frameworks and models. Using a defined framework to implement a quality improvement program provides a structure to ensure that the QI program involves the four focus areas and stays on track. Some of the quality improvement frameworks/models used in healthcare organizations are:

- 1. CHRONIC CARE MODEL (CCM):** - The Chronic Care Model (CCM) is a QI framework/model to improve the quality of health care delivered to people with chronic illnesses/conditions.

This identifies six aspects of quality care and improvement

- **Health System:** Create a culture, organization and mechanisms that promote safe, high quality care
- **Delivery System Design:** Assure the delivery of effective, efficient clinical care and self-management support
- **Decision Support:** Promote clinical care that is consistent with scientific evidence and patient preferences
- **Clinical Information Systems:** Organize patient and population data to facilitate efficient and effective care
- **Self-Management Support:** Empower and prepare patients to manage their health and health care
- **The Community:** Mobilize community resources to meet needs of patients

2. LEAN: - The Lean framework/model is directed toward maximizing what the patient/customer expects/requires in the most cost-effective manner (e.g., eliminating waste).

The key aspects of Lean Health Care are:

- A healthcare organization-wide culture of continuous patient-centred quality improvement
- All healthcare organization processes are patient-centred; add value from the patient's perspective
- All healthcare organization personnel have a shared vision of quality improvement
- All healthcare organization personnel are given permission and the ability to initiate quality improvement actions
- The healthcare organization makes any and all indicated changes to improve quality

3. SIX SIGMA: - The Six Sigma framework/model is directed toward reducing errors/defects within an organization. An acceptable Six Sigma error rate is no greater than 0.000001, but the error rate in healthcare organizations is estimated to be, overall, the much higher 0.01 (unacceptable error rate).

DMAIC is a data-driven strategy used to reduce errors/defects by improving existing healthcare organization processes. DMAIC stands for:

- Define the problem, improvement activity, opportunity for improvement, the project goals, and patient/customer (internal and external) expectations/requirements.
- Measure healthcare organization process performance.
- Analyse the healthcare organization process to determine root causes of variation, poor performance (defects such as medical errors).
- Improve healthcare organization process performance by addressing and eliminating the root causes.
- Control the improved healthcare organization process and future process performance.

4. **LEAN SIX SIGMA:** - Many quality improvement professionals have merged the Lean and Six Sigma frameworks/models into one unified approach called Lean Six Sigma which is a framework/model which simultaneously focuses on both maximizing what the patient/customer expects/requires in the most cost-effective manner (e.g., eliminating waste) and reducing errors/defects within an organization.

The basic strategy of Lean Six Sigma is to first use the Lean strategy to eliminate waste and make the processes cost effective. Once that is accomplished, the Six Sigma DMAIC or DMADV strategy is used to reduce errors/defects in the Lean streamlined processes by either improving them or replacing them.

5. **MODEL FOR IMPROVEMENT (PLAN – DO –STUDY-ACT):** - The Model for Improvement is used by the Institute for Healthcare Improvement (IHI) to guide its quality improvement work. The Model was developed by the Associates in Process Improvement (API) and is "a simple, yet powerful tool for accelerating improvement. This model is not meant to replace change models that organizations may already be using, but rather to accelerate improvement." The changes are tested in real-time in the real work setting concurrent with existing work practices, but in such a way so as not to interfere with existing workflow. In short, changes are tested on a small scale and not implemented on a wide scale until the healthcare organization is sure that the changes are better than the

existing situation. There are four steps in the testing cycle: 1) Plan, 2) Do, 3) Study, and 4) Act. The shorthand reference for this testing cycle is PDSA.

- Plan: Plan the test or observation, including a plan for collecting data
- Do: Try out the test on a small scale
- Study: Set aside time to analyse the data and study the results
- Act: Refine the change, based on what was learned from the test\

TOPIC 3: - HEALTHCARE ORGANISATION QUALITY DOMAINS

Healthcare organization quality improvement frameworks/models from which to choose to implement a Quality Improvement (QI) program (e.g., Lean, Six Sigma. Lean Six Sigma). Each framework/model incorporates the four focus areas needed for a successful QI program in a healthcare organization:

- The operation of the healthcare organization as a system.
- Patient/customer exceptions/requirements.
- The need for everyone in the healthcare organization to work as a team.
- Collecting and analysing both qualitative and quantitative data to track quality.

6 content area (domains) of healthcare organisation functioning should focus on in order to improve the quality:

- Safety Domain
- Effectiveness Domain
- Person-Centeredness Domain
- Accessibility, Timeliness, Affordability Domain
- Efficiency Domain
- Equity Domain

SAFETY DOMAIN: - The domain of safety quality involves ensuring that patients in the healthcare organization are not harmed by the health care intended to help them. The first step in Safety Domain QI is choosing the framework/model to use (e.g., Lean, Six Sigma). In Six Sigma language, improving patient/customer safety is similar to reducing organizational product defects/errors.

EFFECTIVENESS DOMAIN: - The domain of effectiveness quality involves ensuring that healthcare organization patients/customers are provided with the optimal care for their situation; that is, they are provided with evidence-based health care which does not underuse appropriate, effective care and does not overuse ineffective, inappropriate care. The benefits of any health care outweigh any risks and the health care is clinically effective.

quality across the entire healthcare organization.

PERSON-CENTEREDNESS DOMAIN: - The domain of person-centeredness quality involves ensuring that delivered health care in the healthcare organization is person/patient-centred; that is, each person is treated as an individual and that individual's wishes, preferences, needs, and values are respected and incorporated into health care delivery.

ACCESSIBILITY, TIMELINESS, AFFORDABILITY DOMAIN: -The domain of accessibility, timeliness, affordability quality involves ensuring that:

1. There are no unnecessary barriers to health care access at the healthcare organization;
2. Healthcare organization wait times are optimized for both patients/customers and healthcare personnel (e.g., no unnecessary waiting); and
3. Health care at the healthcare organization is as affordable as is possible.

Accessibility (access to care) quality and affordability quality are concerns not only for each individual healthcare organization, but also for the healthcare industry as a whole.

An individual healthcare organization has more control over timeliness quality than either accessibility quality or affordability quality in that healthcare organization. Timeliness references wait times, and the longer the wait time the lower the quality.

EFFICIENCY DOMAIN The domain of efficiency quality involves ensuring that processes in the healthcare organization are efficient; waste is eliminated.

EQUITY DOMAIN: - The domain of equity quality involves ensuring that none of the other quality domains (e.g., safety, person-centeredness, and timeliness) vary in quality because of a patient's/customers personal characteristics (e.g., gender, ethnicity, race, age, disability status, and socioeconomic status). Although individual healthcare organizations can address this issue fully within the organization's functioning, it is a concern of the the healthcare industry as a whole.

TOPIC 4: - ORGANISATIONS WHICH ENCOURAGE QUALITY IN HEALTHCARE ORGANISATION

Some organizations focus on organizational quality and quality improvement in many industries (including healthcare). Some focus only on the healthcare industry, on healthcare organizations.

- Organizations which Encourage and Support Quality Efforts with a Multi-Industry Focus
- Organizations which Encourage and Support Quality Efforts with a Healthcare Organization Focus

Two of the more commonly known organizations which encourage and support quality efforts with a multi-industry focus are the: National Institute of Standards and Technology (NIST) and American Society for Quality (ASQ).

National institute of standards and technology

The **(NIST)**, founded as the Bureau of Standards in 1901, provides quality resources for organizations via its development of measures and standard

The American society of Quality

The (ASQ) has "individual and organizational members around the world, the reputation and reach to bring together the diverse quality champions who are transforming the world's corporations, organizations and communities to meet tomorrow's critical challenges".

Organizations which Encourage and Support Quality Efforts with a Healthcare Organization Focus

Agency for Healthcare Research and Quality

AHRQ "is the lead Federal agency charged with improving the safety and quality of America's health care system. AHRQ develops the knowledge, tools, and data needed to improve the health care system and help Americans, health care professionals, and policymakers make informed health decisions." Some of the AHRQ resources useful to healthcare organization quality and quality improvement efforts are its "range of data resources in online, searchable databases" at its Data website as well as "practical, research-

based tools and other resources to help a variety of health care organizations, providers, and others make care safer in all health care settings" at its Tools website.

Institute for Healthcare Improvement (IHI)

(IHI) whose mission is to "improve health and health care worldwide". IHI provides resources for the Model for Improvement which is "a simple, yet powerful tool for accelerating improvement. This model is not meant to replace change models that organizations may already be using, but rather to accelerate improvement. "IHI also offers professional certification, specifically the Certified Professional In-Patient Safety (CPPS).

National Committee for Quality Assurance (NCQA)

NCQA exists to improve the quality of health care, better health care, better choices and better health. They provide a number of resources to healthcare organizations interested in quality improvement.

National Association for Healthcare Quality (NAHQ)

NAHQ is the only organization dedicated to healthcare quality professionals.

Public health Foundation

Public Health Foundation (PHF) has as one of its focus areas Quality Improvement in Public Health which is the use of a deliberate and defined improvement process, such as Plan-Do-Check-Act, which is focused on activities that are responsive to community needs and improving population health. It refers to a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community.

National Association of County and City Health Officials (NACCHO)

NACCHO has a focus area on Quality Improvement as it has been introduced to, and embraced by, the field of public health as a means to achieve efficiencies and improve quality of services to improve overall community health.

Pharmacy Quality Alliance

(PQA) which aims to advance the "quality of medication use". PQA has developed performance measures and encourages quality improvement in healthcare

organizations through its Quality Forum Series and Quality Awards which recognize "prescription drug plans that have high achievement or significant improvement in PQA measures of medication safety and appropriate use".

The centres for Medicare and Medicaid services

CMS sponsors a number of Quality Initiatives which "touch every aspect of the healthcare system". The CMS Quality Strategy is based in the Meaningful Measures Framework which "identifies high priority areas for quality measurement and improvement. Its purpose is to improve outcomes for patients, their families and providers while also reducing burden on clinicians and providers".

TOPIC 5: - TYPES OF QUALITY MEASURES IN HEALTHCARE ORGANISATIONS

This topic involves discussion on general types of quality measures which produce data of quality improvement in health care organisation

OVERVIEW OF QUALITY MEASURES

The Centres for Medicare and Medicaid Services (CMS) defines Quality Measures as “tools that help us measure or quantify healthcare processes, outcomes, patient perceptions, and organizational structure and/or systems that are associated with the ability to provide high-quality health care and/or that relate to one or more quality goals for health care.

When speaking of quality measures in the healthcare industry, most people organize the measures into three categories

1. STRUCTURAL QUALITY MEASURE
2. PROCESS QUALITY MEASURE
3. OUTCOME QUALITY MEASURE

STRUCTURAL QUALITY MEASURES: - Structural Quality Measures are those related to the healthcare organization's structure. Such measures describe the healthcare organization itself. They describe the capacity of the healthcare organization's

infrastructure. This infrastructure is comprised of physical facilities, personnel, and equipment.

PROCESS QUALITY MEASURES: - Process Quality Measures are those related to the healthcare organization's processes. Such measures describe what happens in the healthcare organization. They describe what a patient can expect to encounter in the healthcare organization.

OUTCOME QUALITY MEASURES: - Outcome Quality Measures are those related to the outcome (effect) of the healthcare organization's structure and process. In this sense, both Structural Quality Measures and Process Quality Measures should affect the Outcome Quality Measures.

CHARACTERISTICS OF A GOOD QUALITY MEASURES

Regardless of whether a quality measure is structural, process, or outcome, a good healthcare quality measure meets certain criteria (has specific characteristics). One of the best criteria list is the one developed and used by the National Quality Forum (NQF)

The NQF Measure Evaluation Criteria include:

1. Importance to Measure and Report
2. Scientific Acceptability of Measure Properties
3. Feasibility
4. Usability and Use
5. Comparison to Related or Competing Measure

WEEK 2

TOPIC 1: - MEDICAL QUALITY MEASURES IN HEALTHCARE ORGANISATION

Some of the specific measures used in medical healthcare organizations which were mentioned

- National quality forum
- The Centers for Medicare and Medicaid services
- CMS and the Office of the National Coordinator for Health IT

Although each of these measures and any other can be used by any medical healthcare organization for internal purposes and improvement, some measures are required or strongly encouraged for use and reporting to external organizations (e.g., reimbursement organizations, ranking organizations).

Quality Measures Linked to Reimbursement

Most healthcare organizations receive reimbursement (payment) from private (commercial) and public (government) third-party payers. These payers generally require healthcare organizations to demonstrate that the quality of the health care is worth the reimbursement and, thus, tie reimbursement to quality either directly or in general.

Effectiveness of Care

1. Access/Availability of Care
2. Experience of Care
3. Utilization and Risk Adjusted Utilization
4. Health Plan Descriptive Information
5. Measures Collected Using Electronic Clinical Data Systems

Quality Measures Not Linked to Reimbursement

There are also many structured and not-structured healthcare organization quality measures not used for reimbursement. Many of these are directed toward patients/consumers to aid in their evaluation of which healthcare organizations to use for health care delivery products and services. Some are required for accreditation or certification.

TOPIC 2 DENTAL QUALITY MEASURES IN HEALTHCARE ORGANISATIONS

Some of the quality measures address dental care and oral health. Specifically, they are two measures in the Child Core Set related to the Oral Health Quality Improvement Initiative:

- Dental and Oral Health Services: Dental Sealants for 6–9-Year-Old Children at Elevated Caries Risk (SEAL-CH)
- Dental and Oral Health Services: Percentage of Eligible Who Received Preventive Dental Services (PDENT-CH)

Some dental healthcare organizations receive reimbursement (payment) from private (commercial) and government (public) third-party payers. These payers generally require healthcare organizations to demonstrate that the quality of the health care is worth the reimbursement and, thus, tie reimbursement to quality either directly or in general.

Quality Measures Not Linked to Reimbursement

The American Dental Association (ADA) Dental Quality Alliance (DQA) is also working on voluntary dental Practice Assessments quality measures to: "assist practices in getting started with measuring towards quality improvement".

However, most dental healthcare organization quality measures which are not directly linked to reimbursement are directed toward patients/consumers and are often developed/reported by patients/consumers.

TOPIC 3: - PHARMACY QUALITY MEASURES IN HEALTHCARE ORGANISATION

Pharmacy Quality Measures

Reimbursement/payment for a pharmacy is usually directly linked to the pharmaceuticals dispensed. Each pharmaceutical (medication) has a price and the pricing of that pharmaceutical is usually established elsewhere. As such, no specific pharmacy quality measures affect that drug product price and how much the pharmacy is reimbursed/paid for that medication product.

Pharmaceutical Quality Measures

Pharmacy quality and quality improvement are essentially meaningless if the quality of the pharmaceuticals dispensed is not good. And the quality of the pharmaceuticals (medications) is largely out of the control of the individual pharmacy (except for compounding pharmaceuticals). The mass-produced pharmaceuticals/medications dispensed by pharmacies have quality controlled external to the pharmacy.

Many of the "quality measures" associated with pharmacies are, in fact, local, state, and federal laws/regulations regarding the operation of a pharmacy. However, there are some quality measures developed specifically for pharmacies such as those developed by pharmacy accreditation associations.

TOPIC 4: - HEALTH INSURANCE PLAN QUALITY MEASURES

Quality measures are defined for those healthcare organizations which provide health insurance plans (medical, dental, prescription drug).

Medical/Health Insurance Plan Quality Measures

One of the best-known quality ratings of medical/health plans is the National Committee for Quality Assurance (NCQA) Health Insurance Plan Ratings for commercial (private, Medicaid, and Medicare) insurance plans. Each rated plan is assigned an overall quality rating from 0 to 5 (five is highest) as well as a 0 to 5 quality rating in each of three categories: Consumer Satisfaction, Prevention, and Treatment.

Dental Insurance Plan Quality Measures

The American Dental Association (ADA) Dental Quality Alliance (DQA) has developed a set of quality measures for Medicaid and Dental Plan Assessments. The measures are divided into three categories:

1. EVALUATING UTILIZATION
2. EVALUATING QUALITY OF CARE
3. EVALUATING COST

Prescription Drug Insurance Plan Quality Measures

In addition to the Health Plan Summary Rating, Medicare also provides Plan Quality and Performance Ratings from 1 to 5 (5 is the highest) for prescription drug plans.

WEEK 3

TOPIC 1: - TYPES OF QUALITY DATA IN HEALTHCARE ORGANISATION

Once a healthcare organization chooses the specific quality measures to be used, that organization has to determine, collect, and analyse the data associated with that measure.

- Type of quality data
- Quality data Documentations

TYPE OF QUALITY DATA

The data for healthcare organization quality measures are of two general types: qualitative and quantitative.

Qualitative data include descriptions, stories, images, and opinions in their entirety - exactly as they were created (e.g., exactly as written, exactly as spoken).

Quantitative data are numerical data. Such data are able to be modelled and analysed statistically. Most data used to measure quality and quality improvement are quantitative.

- NOMINAL
- ORDINAL
- INTERVAL
- RATIO

Quality Data documentations

It is important for any healthcare organization to document in detail the quality measures and data used for quality improvement.

Details for a dataset of measures (variables) and data are usually contained in a document called data documentation.

Such a document “describes the contents, structure, and layout of a data collection ... information intended to be complete and self-explanatory for each variable in a data file”. Specifically, such data documentation often contains (at a minimum):

- Measure/Variable Name
- Data Type/Level (e.g., quantitative, ratio)
- Valid Data for the Measure (e.g., range of 0 to 100; 1, 2, 3)
- Any Value Associated with the Valid Data (e.g., 1= Fair, 2=Good, 3=Excellent)

A healthcare organization must ensure that all quality measures and associated data are documented and that the documentation is updated as needed so that everyone involved in the quality improvement program can easily understand the measures and data underlying the quality improvement (QI) program. If existing data collected elsewhere are used in the QI program, then the data documentation for that dataset should be obtained and made available to all so that the external data can be properly understood in relationship to the internal QI measures and data.

TOPIC 2 QUALITY DATA METHODOLOGY IN HEALTHCARE ORGANISATION

Once a healthcare organization has decided which measures and data to include in the quality improvement (QI) program, the healthcare organization must decide on the methodologies to be used collecting that data and analysing that data.

- Quality Data Collection Methodologies
- Quality Data Analysis Methodologies

QUALITY DATA COLLECTION METHODOLOGIES

Healthcare organizations usually collect data for quality improvement (QI) programs using three basic methodologies: surveys (e.g., survey of patients/customers), internal healthcare organization records (e.g., Electronic Medical Records), and external relevant databases

For qualitative data (e.g. descriptions, images), there are three basic qualitative data collection forms/methodologies:

- Interview (individual, focus group),
- observation (individual, group, location)
- Document analysis (content analysis).

Quantitative data, the usual data collection forms/methodologies are surveys/questionnaires, direct observations/measurements, and use of existing records/data. Which data are collected is guided by quantitative research designs.

SAMPLE STRATEGIES USED FOR QUALITY

- **Random sampling**
- Stratified random sampling
- Systematic sampling.

TOPIC 3: - QUALITY TOOLS IN HEALTHCARE ORGANISATIONS CAUSE- AND- EFFECT DIAGRAM AND CHECK SHEET

There are certain tools and methods commonly found in quality improvement (QI) work with which any QI professional should be familiar. Some of these are referred to as The Seven

Basic Tools of Quality (or The Basic Seven or The First Seven). Kaoru Ishikawa is credited with development of this list **of seven quality tools**.

The tools are:

- 1) cause-and-effect diagram,**
- 2) check sheet,**
- 3) control charts,**
- 4) histogram,**
- 5) pareto chart,**
- 6) scatter diagram, and**

7) stratification.

Cause-and-Effect Diagram the development of the **cause-and-effect diagram** is credited to **Kaoru Ishikawa**. The diagram is also known as the **Ishikawa chart** or **fishbone chart**. The purpose of the diagram is to visually represent the possible causes for a quality problem situation (effect) which is the focus of quality improvement (QI). The process of developing the diagram helps those involved in the QI program organize their thinking and understand the processes affecting the quality problem situation of focus. The diagram itself adds visual clarity to the discussion and QI efforts. The diagram visualizes a quality problem situation (the effect) and the factors which impact it (the causes of the effect).

TO BUILD THIS CAUSE AND EFFECT DIAGRAM

Step 1. Briefly define the effect (quality problem situation) which is the focus of the QI effort (e.g., low level of patient/customer satisfaction); this definition takes the form of a brief quality problem statement.

Step 2. Briefly define the major causes/factors affecting the quality problem situation (effect). It is suggested, although not required, that as an initial step the causes be organized into four categories for service industries (The 4 Ps) and six categories for manufacturing industries (The 6 Ms).

The suggested categories (The 4 Ps) for service industries are:

- Policies
- Procedures
- People
- Plant/Technology (Facilities, Equipment)

The suggested categories (The 6 Ms) for manufacturing industries are:

- Machines
- Methods
- Materials
- Measurements
- Mother Nature (Environment)
- Manpower (People)

Step 3. Briefly define each major cause in more detail in order to find root causes of the effect. This process is sometimes accomplished through use of a process called the Five Whys Analysis. The process asks "Why" repeatedly to get to the root cause of the major cause, and thus, the root cause of the problem. Usually identifying the root cause takes five or fewer "whys".

CHECK SHEET

The check sheet is a data collection tool to track "effects" - to track when, where, etc a specific quality problem occurs. The check sheet is a spreadsheet with the effects to be tracked listed vertically in the first column. The when, where, etc. of interest are listed horizontally in the first row. A check mark is placed in the intersection of the effect and the relevant when, where, etc. at the time the effect occurs.

An effective check sheet requires that the QI team generate a complete list of all of the effects of interest as well as a complete list of all of the conditions under which that effect occurs. One or more individuals then observes (watches for) the occurrence of the listed effects and the conditions under which they occur and marks the check sheet accordingly.

Effect	Morning	Afternoon	Total
EMR Too Slow	= 8	= 3	11

TOPIC 4 QUALITY TOOLS IN HEALTHCARE ORGANISATION: - CONTROLS CHARTS AND HISTOGRAM

Control Charts

A control chart can be considered a monitoring system which indicates when action needs to be taken. As long as no action needs to be taken the situation is considered under control. The basic purpose of the control chart is to determine when events are under control and when they are not; when organizational processes can continue as is and when changes (interventions) need to be made.

Common types of control charts are:

- Individuals and Moving Range Chart (I-MR Chart or X-MR Chart): continuous data, one data point collected at each point in time
- Xbar and Range Chart (Xbar-R Chart): continuous data, data collected in groups of between two and 10 (at least 2, but less than 10) observations
- Xbar and Standard Deviation Chart (Xbar-S Chart): continuous data, data collected in groups of at least 10 observations
- *c*-Chart: discrete data, number of defects per unit, number of samples of each sampling period is essentially the same
- *u*-Chart: discrete data, number of defects per unit, number of samples of each sampling period may vary significantly
- *np*-Chart: discrete data, whether the unit has at least one defect (whether unit is defective or not, unit is pass/fail), constant sampling size.
- *p*-Chart: discrete data, whether the unit has at least one defect, sampling size is not constant

Histogram

- The histogram is a common tool to display frequency (counts) in different categories both within and outside of QI programs. The histogram shows the distribution of data; for example, the distribution (frequency, count) of patients/customers arriving at an Emergency Room by day of the week. Most spreadsheet software such as Excel includes the histogram as a chart option. ASQ provides a quality-related histogram Excel template.

TOPIC: - 5 QUALITY TOOLS IN HEALTHCARE ORGANISATION

PARETO CHARTS, SCATTER DIAGRAM, AND STRATIFICATION

Pareto Chart

A pareto chart can be considered a histogram (bar chart) to display counts (frequencies) arranged in descending order combined with a line graph to represent percentages. The category with the largest count is the first bar. The categories/bars are then placed next to each other in descending order in terms of count (frequency). The line graph placed above each bar represents the percentage each category (each bar) adds to the total percentage. **The American Society for Quality (ASQ) states that a "Pareto chart is a bar graph. The lengths of the bars represent frequency or cost (time or money) and are arranged with longest bars on the left and the shortest to the right. In this way the chart visually depicts which situations are more significant".**

Scatter Diagram scatter chart (otherwise called a scatter plot) is a typical device to show the connection between two factors on one diagram both inside and outside of QI programs. For instance, the scatter diagram can show the connection somewhere in the range of tallness and weight. ASQ states that the scatter diagram "graphs sets of numerical information, with one variable on every axis, to search for a connection between them. On the off chance that the factors are connected, the focuses will fall along a line or bend. The better the correlation, the tighter the points will hug the line"

Stratification

Stratification, now and again called stratified sampling, is characterized by ASQ as "a strategy utilized in blend with other information examination instruments. At the point when information from an assortment of sources or classes have been lumped together, the importance of the information can be difficult to see. This procedure isolates the information with the goal that examples can be seen."

WEEK 4

DESIGN A HEALTHCARE ORGANIZATION QUALITY

IMPROVEMENT PROGRAM

TOPIC 1 CREATE A QUALITY IMPROVEMENT PROGRAM IN A HEALTHCARE ORGANIZATION

The spreadsheet project requires synthesis of course material to design a quality improvement program in a healthcare organization to run things in the best of all worlds. The spreadsheet file is an artifact of the course which can be circulated to colleagues or use for a talk or presentation event.

In constructing the spreadsheet, it is to be done from the perspective of the chief healthcare administrator of an organization. It describes the organization's quality improvement program to an audience.

Healthcare administration encompasses responsibility for all aspects of a healthcare organization. The focus is both internal to the organization and external to the organization to maximize the efficient and effective operation of the organization as a whole and its survival both short-term and long term. Healthcare administrators make decisions about the direction and operation of the healthcare organization. The role of the healthcare administrator is more strategic than tactical.

TOPIC 2. TO GENERATE AN EFFECTIVE ELECTRONIC SPREADSHEET

The basic process for generating an effective electronic spreadsheet file is:

1. Choose the spreadsheet software to use
2. Add the content
3. Iterate to improve

TOPIC 3. TO JUDGE THE QUALITY OF A SPREADSHEET

The quality of the spreadsheet will be judged on two major factors:

- 1) Whether the spreadsheet content is sufficient for its intended purpose, and
- 2) Whether the spreadsheet appearance is such that the content can be grasped relatively easily. Most spreadsheets are produced for a specific purpose (e.g., a meeting, for consideration and feedback) and the sufficiency of the content is related to its purpose.

References

<https://www.coursera.org/learn/quality-improvement-in-healthcare-organizations/home/welcome>