Basics of Health Promotion and Education Intervention
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Lecture - 39
RE-AIM Framework for Health Promotion Program Evaluation

So, after understanding the different evaluation models and the different techniques for analysis of health behaviour change data now, we discuss today about the RE-AIM framework for health promotion program evaluation. You remember during our discussion on health program evaluation techniques and models we discussed that RE-AIM framework is kind of a newer framework and is a holistic framework it is a better framework a comprehensive one. So, in this lecture we will be discussing about this RE-AIM framework.

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We will be understanding what are the RE-AIM evaluation dimensions because this is essentially an evaluation framework and we will be also understanding the concept that how an evaluation framework will again behave as a planning framework again behave as a research framework also. We will be discussing about the RE-AIM questions and the relationship among the different RE-AIM dimensions.

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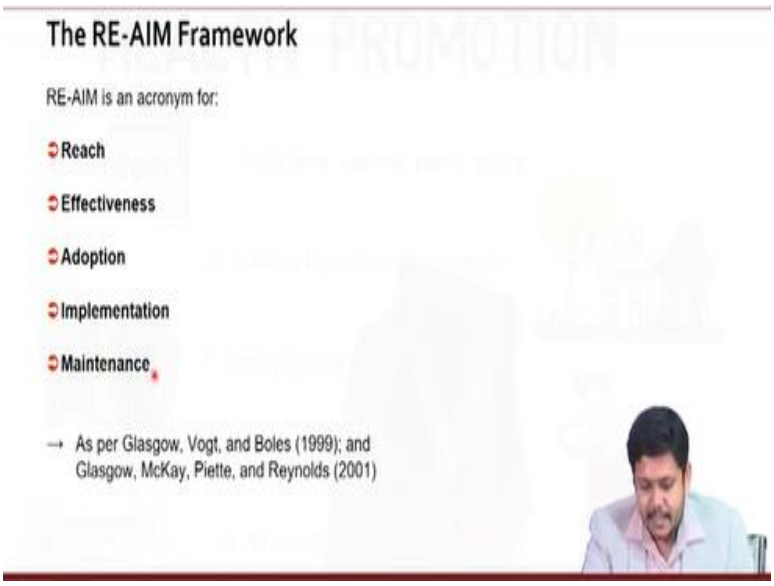

So, what is RE-AIM? RE-AIM is basically the abbreviation for R for reach, E for effectiveness, A for adoption, I for implementation and M for maintenance. If you can just recall when we were discussing about the challenges of health promotion and education interventions, I showed you a chart of challenges. And in that chart the last part dealt with maintaining and told you that maintaining related issue comes under this part of maintenance.

So, here we are this is the maintenance component we will be discussing in RE-AIM framework as we go into details.

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So, first is reach, what is reach? Reach as it as it usually implies it refers to the percentage of potential participants who are exposed to an intervention and how representative they are. So, reach basically has two components, one is qualitative component and another is quantitative component. What is the qualitative component? The qualitative component is regarding I mean it is difficult to understand but please bear with me.

Qualitative component is in between these two issues like the percentage of potential participants and how representative. Because how representative the participants are, you can just understand through the principles of sampling whether you can extrapolate the intervention or extrapolate your findings to the population from where the participants are derived or not the representativeness of it.

But the representativeness has a qualitative dimension. That qualitative dimension is reflected in reach. And the quantitative dimension per say is represented through percentage of potential parasitic participants. How many participants were there in your study got the intervention per say I mean that is what is mentioned by who are exposed to an intervention. So, reach basically refers to the individuals or the end users of your program.

For example, if I am using an app-based intervention, if I am using a website-based interventions so what will reach imply over here, who are the participants and how my intervention is reaching those participants. That is what we deal with reach.

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Next comes, effectiveness. Now while reach dealt with the individual level the end user level effectiveness concerns also at the individual level but it is concerned with both the intended or positive impacts and also the positive possible negative or in unintended consequences. Remember when we were discussing about the effect size part, we told you that the measurement of effect size usually done by Cohen's d or p size.

If we consider if I mean consider those two measurements only then those two factors those two measurement techniques or those two statistics they can be measured in positive or in negative way. The positive value means it is a good thing or it is a good relation is their negative elements, bad things are happening or bad relations. I mean the context also depends on how do we compare and which variable we are taking post or pre like this but in general, the notion is like this that positive is a good thing negative is a bad thing.

Consider that thing as effectiveness because in effectiveness we will be getting concerned with both the intended outcome. Intended outcomes will be the positive outcome and if there are certain other things which are other than the intended outcomes then that is not helpful. So, that is undesired outcomes. Consider the covid19 pandemic related propaganda as holistic approach I mean do not consider the individual intervention packages.

Consider that all the packages all the interventions are given at once. So, when all the; interventions are given at once and that in behavioural intervention package is there for you. Remember what happened? People did not have proper understanding of the disease but the input was that that you behave properly you have to do this you have to maintain that and because of all these things you have to get protected from Covid 19 illness and everything.

People start panicking and there were certain distractions and they were kind of a social problem like people were throwing out those who were having the disease or in fact people were throwing out the health care workers out from their homes because they feared that they might bring the disease. But the original message never conveyed any such information but since the targeted behaviour intervention ultimately led to the main outcome that you have to stay protected from that Covid 19 illness.

That necessary or that intention or that motivation to stay away from the illness or get be remain protected from the illness ultimately lead to all these maladaptive practices. So, these maladaptive practices these are your unintended consequences. This we will be considering when we consider the effectiveness part of an intervention. So, when we deal with effectiveness, we not only consider how protected the people are how good the things have happened.

We also consider what are the bad things that happen and this is another important consideration when we decide on whether to sustain that program or not like. So, effectiveness this is why becomes very essential and you can remember recall that efficacy is also a very well-studied part in the literature and efficacy is perhaps the most important component that majority of the researchers have studied when they are concluding regarding an intervention being effective or not or to sustain it or not.

So, this relates to this effectiveness part. But with effectiveness we are showing more sense of responsibility by incorporating the negative or unintended consequences and accounting for them as well.

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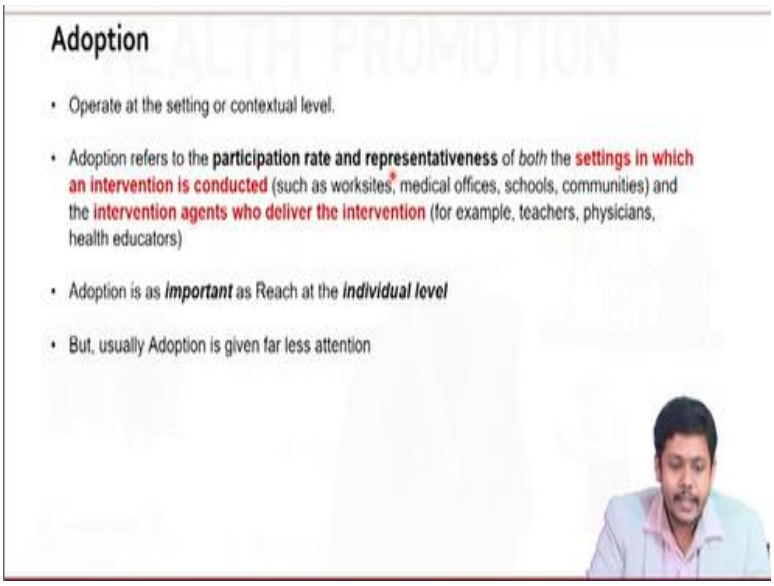

After the individual level variable, we move to the settings or contextual level variables or the settings of contextual level dimension. Here the RE-AIM, components of RE-AIM are better considered as dimensions because they are broad and they are comprehensive in nature. So, adoption basically operates at the setting or contextual level. So, now let us understand what is what is basically adoption.

As the name suggest adoption means adopting something that is taking up something taking up a particular behaviour, it may be adoption. So, it refers to the participation rate and representativeness of both the settings in which an intervention is conducted and the intervention agents who deliver the intervention. This is a bit interesting, I guess. Because well adoption means taking of certain behaviour how do we measure adoption.

We measure adoption by participation rate in the particular intervention process. See in reach what happened was the percentage of potential; participants were exposed. A certain percentage of participants they are exposed in the intervention. Suppose you are doing an interventional study with a one is to two designs with one being in the intervention arm and two being the control arm I mean twice the intervention people are there in the controller.

So, your proportion is one third of your participants are actually exposed to the program that may be your reach. But in adoption out of all the participants who are exposed to the program or in

the intervention group only some participants say 60% or 70% is actually taking up that practice or taking up that behaviour. That gives you the participation rate inside the intervention group. It may be separate for the control group but let us concentrate on the intervention group only.

Because it will be easier to understand. Now for that the person number of participants were participating in that behaviour that constitutes your adoption of that behaviour and it also has the essential criteria for representativeness that was there also for reach. Now you can understand there is a bit of inter linking between reach and adoption. But in reality, what we see is reach is given more focused detail because usually reach has been studied for long.

Now adoption is kind of a newer entrant in the whole discussion segment of health behaviour model intervention evaluations so adoption has not been given that much stress. But from the discussion you can understand that it is in a similar way important as reach. Because see in reach you have only the individual level factor of you consider the individual level and in adoption you consider setting a contextual level.

That is why you are considering both the settings in which an intervention is conducted see that is also again an important part of external validity and also the intervention agents who are the intervention agents. For example, teachers physicians or health educators who are giving the interventions who are delivering the intervention. These are an all encompassing part. So, this is how you measure adoption.

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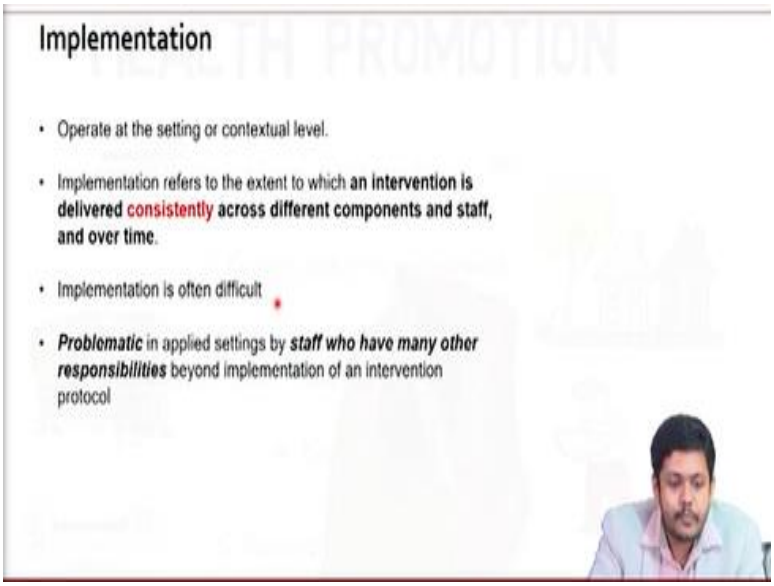

Now after adoption you have implementation. RE-AIM we have considered REA and now we are moving on to I the fourth dimension of RE-AIM frame one that is the implementation part. What happens with implementation? It also similar to adoption operates at the settings or contextual level. In settings level we have two things, adoption and implementation I adoption A I in settings level. So, what happens with implementation?

Implementation refers to the extent to which an intervention is delivered consistently. See again the term consistency is having in our discussion across different components and staff and overtime. Implementation part is usually you can say it is difficult I mean as I have pointed out in this bullet follow this one. The problematic in applied settings by staff who have many other responsibilities; beyond implementation of an intervention protocol.

So, this means that if you have a dedicated staff for that particular intervention, it is less problematic or it will be easier. But if you have a common staff or if you take someone from the common pool of staff for implementation of a health education program or health intervention program it becomes bit difficult. Because that person is having several other responsibilities and that responsibilities are now, I mean it is they are all there but the person is also taking up the responsibility of implementation of this new health education program.

So, in that case it is often difficult. But what we must remember is that it is the how consistently it is delivered across its different components because through intervention you can only differentiate or you can only compare what was proposed and what has been actually done through implementation dimension. So, the difference is one of your indices for measurement.

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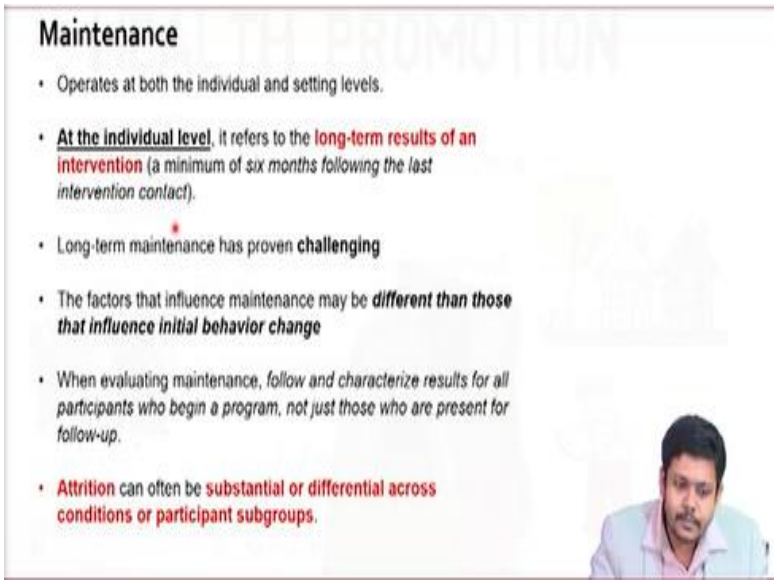

Now the last dimension for RE-AIM framework is the maintenance part. What happens with maintenance? It acts in both the levels at the individual level also and also in the contextual or setting level. So, what happens with individual level it refers to the long-term results of an interventions. For example, by long term you can consider minimum gap of 6 months or minimum and duration of 6 months you can consider a long term.

Since it is considering with long-term effect so long-term maintenance of any behaviour may become challenging and it has been proven over and over in different literature that this long-term maintenance of behaviours are very much challenging. People often fall again into relapse and they fail to maintain the behaviour that they have adopted because they cannot just continue it in a longer term so that is a challenge indeed.

Again, the factors that influence maintenance may be different than those that influence initial behaviour change. So, with maintenance you have a long-term issue and also a sustainability issue. In both the cases the motivation component per say which is very important to bring about

the initial behaviour change that may not be acting in the same way in maintenance. If that is not acting in the same way as maintenance then the maintenance becomes a problem.

Because for maintenance the motivation part you can say or the social support system you have to plan all these things in a whole new way or I mean whole effective new way that is not essentially similar or identical to what you have done for initial change of behaviour. Now this gives you the challenge or the difficulty in maintenance. Now when evaluating maintenance so follow and characterize results for all participants who begin a program and not just who are present for follow-up because there may be attrition.

So, that is called attrition who are not there for follow up loss to follow. So, attrition can often be substantial or differential across conditions or participants group. So, this is again, your important take home message on which groups you are having more attrition. So, for that group not only you have to have keep in mind the maintenance issue you have to devise some other protective mechanism so that attrition does not happen.

So, you have a subgroup analysis for maintenance regarding attrition. For all the follow-up studies in all follow-up cases when you are studying follow-up you have to study the attrition in different subgroup. It is just the same when you are doing the RE-AIM framework when you are analysing the maintenance dimension. Because you have to; address this substantial differential attrition across conditions or participants.

Because that determines your health promotion intervention package as a whole. For that you have to modulate or I mean you have to change the package.

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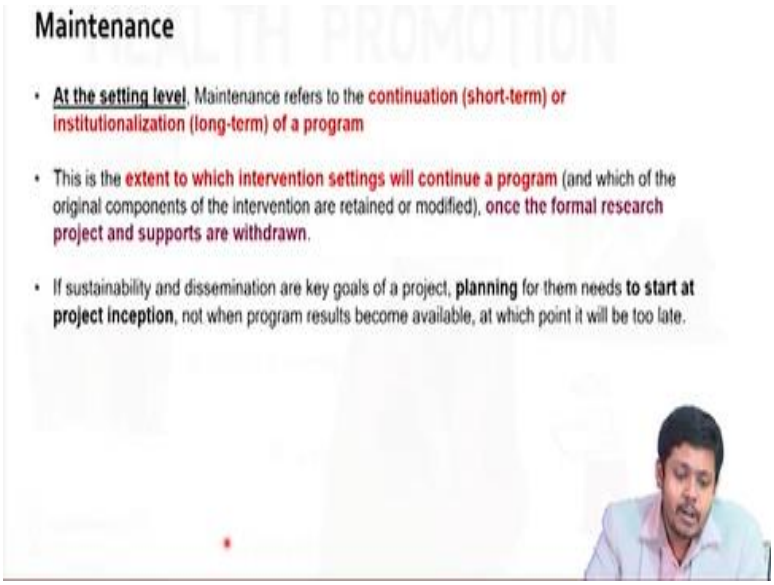

What happens at the settings level? Remember we discussed about institutionalization when we discussed the health behaviour health communication in fact in health communication lectures we discussed about institutionalization the long-term effect of it, the sustainability of it. So, at the settings level it in fact refers to continuation on institutionalization. The short term and long term both but at the individual level it refers to the long-term results of an individual.

But at the settings level remember the difference is this that it refers to both short term and the long-term effects of a program or continuation of a program. This is the extent to which intervention settings will ultimately continue a program. Remember we had a question to what extent the sustenance or the sustainability of an intervention will be there. Now this maintenance concept at the settings level answers the question to which extent the intervention at the settings level will be continued or in fact the program.

Here the intervention means the program it will be continued in a particular setting. So, it in fact gives you the idea because when there is the initial behaviour change you have formal research and you have all the input of all the resources everything is just pouring in. But when all that is withdrawn when the resources are constrained or the formal research is withdrawn this maintenance dimension gives an idea how that particular behaviour will ultimately be performed in that setting.

For example, say hand washing is a very good behaviour it is a very important behaviour and it is now being promoted through because the Covid 19 pandemic is there. But remember Covid 19 pandemic I mean hand washing behaviour it is not only necessary for Covid 19 it is necessary for many other diseases. So, when we consider about only the hand washing behaviour now, we want to consider how sustainable is going to be this hand washing behaviour.

Now that all the propaganda regarding covenant prevention is gradually going to be withdrawn and the setting here is a community setting. Because through hand washing, we want to achieve our diarrhoea control, ARI control…. everything we want to achieve through hand washing and this is an important intervention. So, for that we must consider when this thrust on propaganda or this message while we are connecting over telephone etcetera what the activities that are being done even now.

When these are gradually relaxed or gradually withdrawn how efficiently or how much the beneficiaries the people, they are going to practice this hand washing behaviour. This answer is going to be given by the maintenance dimension at the settings level from our RE-AIM framework. So, I hope this part is clear.. how this last one the formal research project and supports are withdrawn then to which extend the intervention settings will continue the program.

I hope it is clear now. If sustainability and dissemination are key goals to a goal server project planning for them needs to start at a project inception level and not when project results become available at which point it may be too late. So, we told you that RE-AIM framework is again another framework which is not only an evaluation framework. By evaluation we mean which not only gives you the results of how well the program ran or how well the outputs are how good the outputs are for the society, it also helps in devising the plan.

Because through understanding of this maintenance dimension we come to understand that if we want to have sustainable and we want to have us I mean a sustained dissemination then we must plan for them at the very beginning. It is not after the completion of the evaluation. So, this insight is particularly given through the maintenance concept or the maintenance dimension of the RE-AIM framework.

Because we have to allocate all the resources and everything is important. So, this is how RE-AIM is helping you in I mean internally identifying how to develop even a more robust and sustainable interventions. So, that even after you have withdrawn all the formal support the intervention keeps on going. So, that is about maintenance

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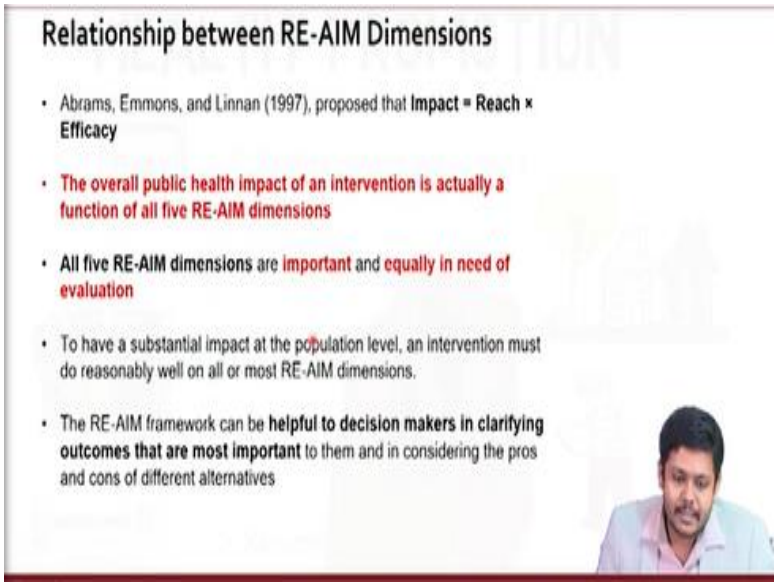

So, what is the relation between RE-AIM dimension? We have already told that Abrams et. al they have said that the impact is a combination of reach multiplied by efficacy. But in RE-AIM dimension what we tend to say is that RE-AIM dimension is very much effective for I mean it is not only reach and efficacy not only RE. The last AIM part that is added to this reach and efficacy; the adoption, implementation and maintenance they are also important.

So, all the five RE-AIM dimensions are important and they are equally in need of evaluation. So, when we do an evaluation of a health promotion education intervention we have to perform evaluation according to all the five domains, RE-AIM all the five domains and we have to identify the variables and we have to measure the indices for all the domains. So, like it is helpful in planning, it is also helpful to decision makers in clarifying outcomes that are most important to them and in considering pros and cons of different outcomes.

Because see in effectiveness we were considering let us go back to effectiveness sorry in adoption we were considering that the intervention agents, sorry pardon me, we were considering

an effectiveness that the possible negative or unintended consequences. So, that is why basically this is helpful for the program managers or the policy makers in the considering the pros and cons. Because this is we can get it through the RE-AIM framework.

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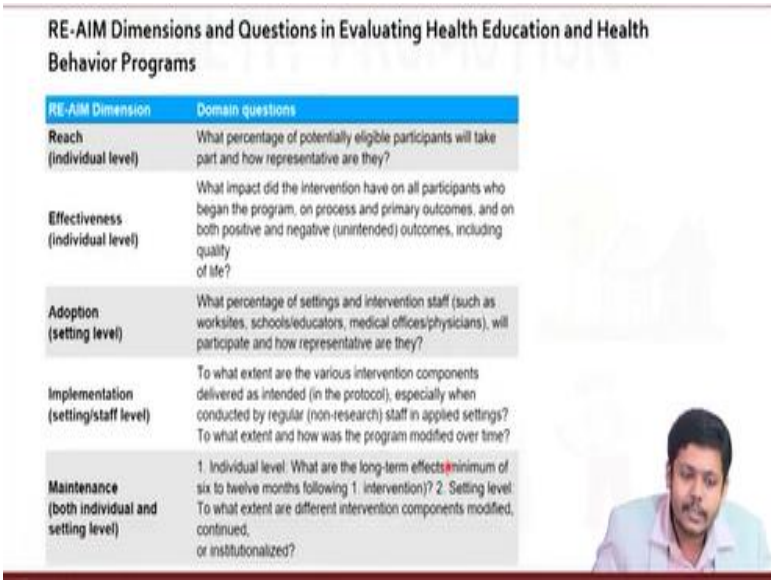

In the final part let us come to this table which shows the RE-AIM dimension and different domain questions. As we have said in individual level we have reach and effectiveness then these two comes in the adoption level and finally there is a maintenance level. So, the question is what percentage of potentially eligible participants will take play take part and how representative they are. I told you about the reach part and this will give the quantitative measure of it.

In effectiveness what happens is what impact did; the intervention have on all participants who began the program on process and primary outcomes and on both positive and negative that is the positive and negative I told you. During effectiveness we consider positive and negative programs including the quality of life. We have considered quality of life suppose for a; I mean a simple example of outcome.

But effectiveness considers this issue like what impact did it have positive and negative and it is also again measurable. Now come to adoption, for adoption the questions are I mean what percentage of settings and intervention staff such as worksite school educators whatever will

participate and how representative are they. So, adoption here in fact is more related to the intervention manpower.

Here the main question is what percentage of settings I mean you have 10 settings; how many settings are going to participate in this intervention. Are they representative? It is not about individual only; it is now about the setting level context. And because of that setting level context the intervention staff how much of the intervention staffs are going to participate. And similarly, you can also I mean expand the horizon to what percentage of actually the intervention group participants are taking up or coming to that setting.

It is in a way it is also the qualitative measure for a setting being effective for a health promotion or a health education that is how much of the participants are actually attending to that clinic or to that setting. But all these aspects are the indices for measurement of adoption. Now come to implementation the question is to what extent are the various intervention components delivered as intended.

I told you for implementation perhaps the most important part which is related to the process of the whole implementation. We have to understand what was proposed and what is being delivered and what are the gaps. So, this is how we measure, the difference we measure. So, that is the implementation part, it against works in the setting or staff level. Because this is not for an individual it is for all the settings where the implementation is being conducted.

Then the implementation will ultimately answer to what extent and how was the program modified over time because it is only through the process, we can identify how it will be changing over time. Again, so for maintenance level, maintenance level we have individual level and we have setting level. We have individual level as I have already mentioned the question is the long-term effects and for setting level, we have both the long term and the short-term changes.

But for maintenance it is at both individual and settings level our major concern is whether to sustain the program or not and how the program will sustain even after the major thrust is

withdrawn. So, that is how you measure the how long what are the long-term effects say this is these are your measuring indicators.

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So, now we come to the end of this RE-AIM lecture. Let us RE-AIM what we have learnt? We learned that RE-AIM is a model for evaluation of health behaviour change programs. It is perhaps a very interesting it is obviously interesting; it is a holistic model in fact. And what are the full forms of each dimension in RE-AIM? Reach, effectiveness, adoption, implementation and maintenance.

And what is the edge for analysing with RE-AIM? Why do we want to analyse with RE-AIM? Because it is not only dependent on efficacy, it is not only dependent on reach and it is not only dependent on reach and efficacy combination it is dependent on all the five dimensions of RE-AIM that is what makes it unique. And another thing is in effectiveness it also considers the bad outcomes or what harm has happened.

Although we tend to minimize the harms but if any adverse events have happened as I have mentioned in my previous examples, we tend to drop that intervention if the bad component is more. So, consideration of good and bad I mean in a balancing way that is the beauty of this RE-AIM framework.

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So, I hope you have understood the evaluation part and the analysis part and in the last lecture we will consider the health impact assessment that we will require your understanding about all the health behaviour models and also this evaluation methodology. And I hope you are already going through these resources; I request you to also go through the handouts the supplementary materials that will be provided of all these presentations that will help you understand in this context.

And obviously if you have any question because all these are very conceptual issue and we often get cleared through discussions. So, if you have any queries, please participate in the discussion program and will be happy to answer. Thank you.