Research Methods in Health Promotion
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Week 11
Lecture 55: Analyzing Mixed Methods data

So, hello everyone. Now, this is lecture 55 and in this lecture we will talk about the Analysis of Mixed Method Data. Now, the important thing is by now you have a clear understanding, you have a clear idea about the quantitative data analysis and also about the qualitative data analysis. Now, in mixed method data analysis the important thing is the integration, because you have with you the quantitative data and also along with that you have the qualitative data. So, how you can integrate and bring some you know meaningful information, some meaningful interpretation out of those data. So, here first of all we will cover the overview of integration, what is actually integration, then convergent design data analysis and interpretation, then explanatory sequential, exploratory sequential and at the end the mixed method experimental design data analysis and interpretation.

So, what is integration? First of all you have to understand that integration is a center piece of mixed method research, because it is not like that you have only quantitative or you have only qualitative. Now, you have both the thing. So, you have the findings of quantitative, you have the findings of qualitative, but why did you go for mixed method research that is very important. The mixed method research question is important.

So, do not think that you have a quantitative for quantitative research question, you have for the qualitative research question, you should also have a clear mixed method research question. So, the rationality of actually adopting mixed method research should be very clear and being a researcher you should be clear and you have to mention it that this is the rationality that why I basically adapted I chose mixed method research. So, in mixed method research the main crux the main center piece is the integration. Now the presence of meaningful integration it distinguishes mixed method from other methodologies that do not highlight the mixing of the databases. So, quantitative database, the qualitative database.

Now this mixed method you know this integration it distinguishes from any other methodologies which actually do not focus on the mixing or merging the two databases. Now, integration is the point in the research procedures where qualitative research interfaces with quantitative research you know that where qualitative data and quantitative data is actually getting interfaced that is basically the point of integration. Now we find that integration has been very poorly described in the literature and often is absent in studies because investigators consider mixed method to be simply collecting and analyzing both quantitative and qualitative data. But no the thing is this is a non integrative approach you are just collecting quantitative data you analyzing you are just collecting qualitative data you analyzing important thing is

that the integrative approach. So, what happen this kind of non integrative approach it does not reflect the true meaning the true value of mixed methods.

Now which arises when additional insight emerges beyond that glean from the separate quantitative and qualitative. So, just getting information getting knowledge from separate quantitative and qualitative no this really does not work. So, basically additional insight emerges when we actually go for the integration. Now, four key considerations the researchers must address when planning and implementing their integrative analysis and interpretation. What are the four key considerations? This is the integration intent first is the intent the researchers intent of doing mixed method the researchers intent of the integration.

Then the integration data analysis procedure first that you have the intent that you will go for the integration then what are the steps then representation you know you have gone through different steps of integration you have the findings. Another important thing is the representation of those integration result you have to represent otherwise it will not be meaningful. And finally, as a researcher you should have the interpretation of the integration results. So, these four key consideration you have to remember these are very simple and you know easy things the intent then the steps are procedures then the result representation and finally, the interpretation of that result. So, first we will talk on convergent design.

Now, here see the different steps for comparing the two databases first we obtain result by quantitatively analyzing the quantitative data and qualitatively analyzing the qualitative data you know. Then with the quantitative and qualitative results identified you have to look for a common concepts across both center findings. So, to the common things which are coming up from both the quantitative findings and the qualitative. Now, you know that is why you know it is important to gather data on the same or similar concept because integration becomes more meaningful and more easy you know when you merge and when you see you know in convergent design that these are the you know convergent findings these are the divergent findings. So, on a similar topic we have discussed these things.

So, it becomes more meaningful when you have a similar concept or topic during the quantitative and qualitative data collection. Now, the next is that you can display I mean you can represent or you can develop joint display tables or graphs that array the two results together. So, that the comparison can easily be made. Now, regarding joint display in subsequent slide I will show you and I will explain you. Now, we can have you know as I said in tabular form you can represent in joint display you know joint display means jointly you can show both quantitative qualitative and the interpretations.

Then you know in some literature in somewhere you will see that they have developed a framework ok. Some interconnecting themes framework and they have written in paragraph form in narrative way that can also be done. Now, compare the results of the tables or graphs

by concepts to determine that in what ways they confirm, disconfirm and expand from each other. Now, what are the you know converging findings, diverging findings the any discrepancy you can compare and you can just mention it. Now, if the results are disconfirming then engage in additional strategies to understand that yeah these are the divergent or discrepant or disconforming evidence or findings.

Now, advance interpretation of how the confirming disconforming and or expanded evidence from the merged data bases it enhanced your understanding. Why do we go for convergent that yeah we can have a very you know in details we can have a very good and enhance understanding and explanation of that particular research problem. So, finally, what happen we can advance our interpretation that how that discrepancies or you know converging diverging findings and expanded evidence from the two merged data bases it enhanced understanding of and provides a in depth insight into the research problem. Then you have to represent. So, the most straight forward option occurs when a researcher presents the integration in a narrative discussion.

You can have as I said in narrative discussion also you can represent. Using this option the researcher organizes the quantitative results and the qualitative results side by side you can do within a section of text that you can develop and discuss them in terms of how the results are similar or dissimilar. Or what you can do in some way what you can do you can have initially the quantitative findings then the qualitative findings and then you just write it down that these are the similar or dissimilar findings. Then one popular approach for integrating the results in narrative discussion is to first present the quantitative statistical result about a topic followed by a qualitative result in the form of codes. Just now I said you can have the quantitative findings first and then you know the qualitative findings with codes about the same topic.

Then after what you can do a comment then follow specifying that how the qualitative codes either confirm, discomfort or complement the quantitative result. So, you have the quantitative thing in your hand then next qualitative. So, how that qualitative codes or findings is actually confirming or disconfirming your quantitative result. Then you can also apart from narrative discussion you can also represent through joint display. So, this is another approach for representation in a convergent design consisting of analyzing the data to create a table or a graph that jointly displays a quantitative and qualitative result side by side that is why it is known as joint display jointly or integration display you can say.

So, a joint display or integration display is an approach to show the integration data analysis by adding a single table or graph you know sometimes what happen at one side and left side you have the quantitative findings in the form of tabular or you can have some pictorial you can put graph and on the other right hand side you can have the qualitative findings. Now, this is just you know just to represent one joint display. So, here important thing is not to focus on the content, but to see the pattern how can we represent. Now, see quantitative at the left corner you can have your quantitative then you know the see faculty members responses or

student responses the qualitative findings you can have which are the congruent or discrepant findings what are the confirming or disconfirming or converging or you know diverging findings that you can put it together. So, at one go what happens in joint display we can see the entire thing we have you know at one go we have the entire idea that what is going on in this particular study.

Now, here also you see the domains depend on your research the domains and you have the quantitative result you have the qualitative result and the comparison see discordance finding or expanded findings or the you know you can also have some converging findings. So, these are the things you know just you have to understand now it depend on you as a researcher how you are going to represent ok. You can write down the quantitative findings or you can show your quantitative findings through some graph and here in this particular corner you can have your qualitative findings and you can come to some inferences what are the converging and diverging findings. So, this way you can represent your findings. Now, then interpretation.

So, representations are done now interpretation. So, after merging the results in side by side comparison narrative or joint display you must interpret the combined result to assess how the analysis answer the mixed meta research question. So, interpretation is very important your interpretation will actually reveal the entire you know the crux of that study that will focus on the mixed meta research question which you have developed beforehand. Researcher using data transformation might interpret whether a significant relationship is found among the transformed data with other data or what meaning can be drawn. Now, in data transformation what happen in convergent design we you know mostly what happens the qualitative themes and codes you can just you know turn you can make the quantification of you can quantify those themes and codes.

And then you can see whether a significant relationship is found among those transformed data with the other data you have and what meaning can be drawn from the relationship and what are the limitations that can be considered. So, in merging the two data set for the purpose of comparison the important thing is what differences should the mixed meta researcher look for when interpreting findings what are the differences has come up. If differences occur then as a researcher you have to think that how will the researcher will address those differences or inconsistencies. Now, next is the explanatory sequential design data analysis and interpretation. Now, here you see first we will go through the steps.

So, you analyze a quantitative database and note statistical result that need further explanation. So, you must be remembering that in explanatory what we do first we go for quantitative and to explain certain outcomes or certain variables we go for qualitative just to explain those results or some abnormal results you know a very atypical result you found in your quantitative part. So, for explanation of that you can just go for the qualitative data collection. Now, determine the purposeful sample usually selected from individuals who participated in the quantitative phase. So, you are done with your quantitative phase now you

determine that who are the you know who will be your sample for your qualitative data collection.

So, you determine the purposeful sample that can best provide you the explanation. Now, then what you do you design qualitative data collection steps that identify the types of questions that needs to be answered by the purposeful sample. So, now you know that you have to go for the qualitative data collection and so you develop these are the types of questions the contained questions you have to develop and you have your aim that those questions has to be answered by the qualitative method. Then after data collection after qualitative data collection you analyze the qualitative data and you can have you know in a table or graph or in a joint display format and also in a in a narrative form in a text form. You can have a quantitative just for an example see you can have the quantitative thing in a tabular form you have shown, but the qualitative explanation of each domain or which particular variable you can write in the text form and then you come for the you know interpretation.

So, but we can always go for joint display. Now, then we interpret the value added by the qualitative explanations. So, what actually added what things we got more from the qualitative part because that is why we you know opted for the mixed method for the explanatory sequential design because our aim was to have an explanation of certain quantitative findings. Like you see this is just a example you can see of joint display this is the format you can see that here the quantitative findings then the qualitative the explanations you know that what things came up actually. So, there are different domains you can see and on the different domains the quantitative scores we have the qualitative thing we can have the different meanings we can have that what actually you know how qualitative data explained that particular quantitative findings.

So, as a researcher it depends on you that how actually you are going to represent in a joint display. So, this is just to show you that you can represent your findings your entire findings in a joint display. Then interpretation. So, you have your you know the integration intent we know the four key consideration integral integration intent after that what are the steps then the representations, representation is very important otherwise things will not be clear. Then as a researcher your own interpretation of the integration result what do you interpret from these integration result how those qualitative findings explained some quantitative findings which you chose or some quantitative variables.

So, abnormal you know typical findings you got from quantitative data collection. Now, when you know in your hand you have the quantitative you have the qualitative explanation finally, you have to come to a you have to come to an interpretation that what is the then final interpretation of the entire thing. So, for an explanatory sequential design the interpretation of the mixed method result from the joint display should indicate how the qualitative results provide a deeper understanding of the statistical findings from the quantitative right. What you know in depth information the in depth understanding in depth explanation. So,

explanation is more appropriate how in depth explanation was done of certain quantitative data findings.

Now, to determine how the qualitative themes and codes provide additional insight into the quantitative database. So, this is an approach which is consistent with an explanatory sequential design intent that how you know as a researcher you should have that particular you know a question that particular word that how the qualitative themes and codes and findings will provide additional explain I mean additional insight and information into that quantitative database. Now, next is the exploratory sequential design data analysis and interpretation. Now, here you know we have discussed what is exploratory sequential design what happens here we first go for the qualitative data collection we explore our aim is to explore to have in depth understanding to have in depth participants experiences their views their beliefs their opinions and based on those qualitative findings we can develop a you know we can develop an instrument a survey tool an app an intervention tool. So, we analyze a qualitative database for themes and codes to describe the personal experiences of individuals or advance a theory or typology that provides a context or culture specific understanding of the phenomenon of interest.

Now, you know I gave you one example that in a tribal population we want to know their dietary habits. Now, see in tribal population what happens they have their own culture specific you know dietary preferences. So, in different communities only we can have I am just giving you an example of a tribal village or tribal population. So, we want to know the different contextual factors and the culture specific beliefs and values and understanding of the phenomenon of interest that is the cultural dietary habits what they do what they prefer what do they eat how do they eat you know. So, everything and based on that we will develop a survey tool and quantitative survey tool.

So, determine next is that to determine what quantitative feature needs to be developed like see I have given here some example intervention treatment survey questionnaire website new variable or new instrument and state is specific goal and purpose. Why you want to develop this particular measurement tool, this particular survey questionnaire or an intervention tool etcetera. So, that has to be very clear. Now, then you have to link or you have to utilize those themes and codes specifically to elements of the quantitative feature. So, you can use those codes those qualitative findings those themes to design items just like as I said now we want to develop a survey questionnaire.

And so, what happened through qualitative we got some very very important themes and categories. So, we can utilize those themes to design items for a questionnaire for questionnaire of that particular tribal community. Apart from this we can also you know we can develop a new variable which is grounded in qualitative personal experiences. So, you know it was not pre assume that these things will come up now you can see that here this personal experiences these factors are coming up you can utilize those variable in your instrument in a quantitative

instrument. So, next you can have a joint display you can design a joint display that convey the link between themes codes and specific elements of the quantitative feature.

I will show you in my subsequent slide now you will see that in a joint display we can represent that these themes codes these qualitative findings is actually helping to develop some items in survey questionnaire. Then you have the items you have you know you have designed you have developed one survey questionnaire. Then you will pilot it you will do pilot testing and you will refine the quantitative features using rigorous procedures different you know procedures you can use for piloting and refining and making it more robust. Then you will test that quantitative instrument for example, the survey questionnaire with a large sample of participants in that particular community because you know that these are the things now you can just apply in that particular population in that particular community. Then you will interpret that how the quantitative results which now you got support the quality and cultural specificity this is very important the quality and culture specificity of the newly developed quantitative feature for the specific population and the sample being studied.

So, now you can have you know your own interpretation that these are the quantitative findings yeah and you will see that yeah these are some things which is actually supporting their culture specificity for that particular population for the for that particular sample which is being studied. Now, here you see in a joint display you see the sub themes or themes you can have and you can you know have some variables or items from these qualitative themes you can develop quantitative variables. Then you can go for you know just see in this step that is the quantitative feature with a large sample of participants after pilot you can go for the testing the quantitative feature of this among the large number of participant and you have your own findings then you will come to an interpretation. So, interpretation that how the quantitative results supported the quality and culture specificity of that newly developed of that newly developed survey tool or the newly developed quantitative feature which was developed for the specific tribal population or the sample you studied. So, that interpretation so, what is the important crux of joint display you see that at one go you have the entire thing.

So, you have the qualitative themes then you develop variables and items and the findings and finally, the interpretation that yeah it was culturally or socially how much you know it was relevant or acceptable etcetera depending on your research question. This is this I am showing you just for that you can understand at least that this is the way I can represent my own study. Then interpretation so, the interpretation of the joint displays in an exploratory sequential it relates to how the quantitative feature and the subsequent results are improved through understanding the qualitative contextual and culture sensivity of participant experiences. So, when you have the participant experiences know like for in tribal population you see that these are the these are the preferences, these are the factors, these are the things they prefer to eat or the way they cook the entire dietary habits if you want to focus on. So, what happen our interpretation is basically that whatever quantitative thing you have developed the quantitative features how you can you know relate to how that quantitative features and the result of that quantitative study finally, you use that tool and you conduct a quantitative study.

So, how first of all the important thing is that how those you know their opinions their experiences helped you in developing your tool more robust and also how you can improved through understanding of their cultural beliefs and participants experiences. So, this is the important of this is the importance of the qualitative findings in this particular design. Then how the initial qualitative phase helped to design a culturally sensitive instrument create specific intervention activities and it shape how it shape the content of a website to be tested or point toward existing survey instruments that might work with participants in a study. So, these are things we have already discussed. Now, we know that we read about we discussed about the embedded design also and in embedded design.

So, we focused on you know in our mixed method you know week 6 we focused on the mixed method experimental design or the experimental model you know the embedded experimental model or you can also say the mixed method intervention trial design. So, here we will focus on this particular design only. Now you know that we have discussed that what is the importance of qualitative data before intervention during intervention after the intervention you are clear with it. You should be very clear that why you are opting for qualitative data collection before intervention or after intervention or during the intervention or in all the 3 phases. So, you are clear and like that only you will prepare you will plan your study.

Now, intent of this design is to augment the trial by embedding qualitative data. So, that the experiment can incorporate the personal experiences of the participants. In the personal experiences in that particular quantitative you know in the trial in the intervention trial that how what are their experience of that intervention, how do they fail, what are the barriers and facilitators they face. This means analyzing the trial results, analyzing the qualitative results and then further determining how the qualitative data augments the trial. So, a joint display it can present the integration of the experimental qualitative result and depends on which phase you are actually embedding the qualitative data.

Based on that you can represent in your joint display. So, in here you see these are the you know treatment, music therapy, music medicine. So, finally, these are the quantitative findings of the trial and you want to know the benefits and harms of this particular intervention or the how do the patient experience the entire interventions. So, see at this at the right corner we have also a joint display you can also put the qualitative part the experiences of the patient. So, quantitative and the qualitative of that particular trial you can just represent in a joint display. And at one go it becomes clear, what are the things which are going on, what are the I mean findings and ideas which has come up from this trial.

So, conclusion now integration is the point in the research procedures where qualitative research interface with quantitative research and four key considerations the researcher must address we have discussed the intent, the steps, the integration result and the interpretation of the integration result. So, in all the methods you know in the mixed method you know the

interventional trial design at the end you have to come for the you have to interpret that you are these things these experiences where there I mean in the qualitative data you found that these are the participants experiences of the intervention or the facilitators and various which they felt. And the joint display or an integration display is an approach to show the integration data analysis by adding in a single tabular graph the quantitative and qualitative data we have discussed and these are the learning resources. Thank you.