

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

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Please note: The following is a direct transcription and has not been edited.

Howard Dubowitz: Okay. We brought the guys on time, right. Good morning. So, my name is Howard Dubowitz. Here we have Laura Proctor and Jonathan Kotch is going to be back in a moment. Thanks for coming. There were lots of good choices. And what we're going to do share with you this morning are some of the highlights of what we think has been really a remarkable 20-year study where we started with little babies and we now have kids who are ranging from 17 to their early 20s and where we've been following these high risk families over these years.

I'm going to start off let's see we have an outline giving you just a brief overview of LONGSCAN stands for Longitudinal Studies of Child Abuse and Neglect. And Laura will then present some of the outcomes of child welfare involvement. Jonathan will move on to health, risk behaviors and some interesting work that they're doing on the kids' brains and I'm going to end up with some of our research on fathers and we're going to have time for questions and you are not just invited, you're requested to participate.

Briefly, LONGSCAN when it started over 20 years ago was in a context of the federal government funding multiple short-term studies typically two or three years and there was the recognition that it was very difficult to learn that much from such limited studies. And so, the NCAN, the National Center in those days before OCAN decided to fund funding permitted -- permitting a 20-year longitudinal study and it began as you see in the late 80s with the planning grant and really the overarching aim has been to study the antecedents and the consequences of child maltreatment and particularly what are the risk and protective factors that shape for example while some maltreated kids appeared to do quite well while others do pretty poorly.

The sampling was deliberately a range of families from those who were at high risk for child maltreatment, but perhaps there had been no abuse or neglect noted up till that point to on the other hand kids who had been maltreated and placed in foster care and you see that there were five distinct studies in the East, South, Midwest, Northwest and Southwest. Just very briefly UNC North Carolina has been the coordinating center as you might imagine running five studies require that they'd be a governance agreement and we agreed that we would use common measures coding, training of the research staff and data entry if we were really 20 years later tend to have comparable data from these five different studies in different sites.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

We had regular course between the principal investigators and twice a year we would meet. Not to try and remember this, but just to give you a glimpse of some of the underlying conceptualization that has guided LONGSCAN and so looking at the colorful figure there what you see is the child starting in the left and then looking at the developmental lifespan and those with the interviews that we did every roughly two years and what we see is no big surprise how early on when kids are little that it's really the family that is the predominant influence and as they get older that peers and the extra familial environment becomes more and more important.

And summarized in these other boxes are some of the constructs of variables that we've been interested in. And so you'll see some of the child characteristics for example looking at the intelligence, the temperament, looking at many aspects of parental and family functioning the spousal relationship, family bonds, then looking at the role of extra familial relationships and also in the community what might be some of the factors influencing kids outcomes. So, this just gives you a glimpse of our thinking and some of the constructs of variables that we've been looking at.

The sample I mentioned five different studies. So, in the East we had 282 at risk kids from urban pediatric clinics for example children who were not growing well or had been exposed to drugs in utero. In the South, there were children who were at around the time of birth considered to be at risk designated to such by a screening tool that looked at both physical and socio demographic risk factors and we recruited for LONGSCAN from that sample a third who had been reported for maltreatment, two-thirds had not.

In the Northwest, these were children who all had been reported to CPS, but on a risk assessment tool with thought to fit into a moderate risk category and I think all or few of them at that time had not been placed. In the Midwest, this was also a at risk population and here two-thirds of them had been maltreated, a third were recruited from similar neighborhoods, but had not been maltreated. And in the Southwest, we have families with the kids had all been maltreated and before age four placed in foster care. So, you get a sense of in general the very high risk population, but it includes those in foster care and others with risk factors, but not really identified as having been abused or neglected.

At baseline, about half of the boys, a quarter were white, half were African American, you'll see that looking at the caregivers about a third were married, about half were single, some divorced. This was again about 20 years ago that the main family income was between 10,000 and 15,000 a year. Interestingly, on average they had graduated high school. This just gives you a sense of the numbers of interviews that we've conducted over the years and as you can imagine tracking families over 20 years is a huge, huge task. It's tough. People move. This is not always the big priority in their lives, surprise, surprise. And so a ton of work has gone into this and we've done we think fairly well so starting with 1354 families at baseline what you see is that so far at age 18 that we have roughly two-thirds maybe a little bit better of the sample still with us. We're not finished collecting that's why the plus sign. So that's a brief overview of what – some of what we've been doing.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

And with that I'm going to shift to Laura to present on the outcomes of child welfare involvement.

Laura Proctor: So, as you could tell from what Howard put up each sample of the five different sites offers sort of a unique set of questions you can ask based on whether it was an all child welfare sample or foster care sample or matched controls and in the case of the Southwest side, we have a sample of children all of whom were removed from the home and placed in foster care for at least five months. So, this is a unique sample. It's not a sample where we can look at whether maltreatment causes poor outcomes because all the children were maltreated; we don't have non-maltreated controls. But it is a sample where we can look very in depth at some of the processes and some of the longer term patterns and what goes on with the children who spend early time in out of home care.

So, all of these children were removed either for neglect or for other types of maltreatment and they all were out of care for at least five months. However, after those five months as you can imagine there is a tremendous diversity in what happened from this children from age four until age 18. Some were reunited and they were never involved again in child welfare. Others were adopted. Some of those adoptions failed. And others spent time in kin or non-kin care often on over time or with one stable guardian over time. So, we have a very nice representation different types of caregivers over time and we can look at how that's related to different outcomes and the issue of stability for these children.

So, now that all the data are in from age 18 and we've been publishing for years papers with quantitative data looking at early outcomes and then as the group gets older later outcomes, we've really become curious by the findings that we've had from our interactions with the youth themselves as they come in and the caregivers. And so what we've done now as we've started to look at life narrative data going back in their files, looking at notes from the field workers, just informal notes on how the kids are doing, there were certain questions they always asked, but they aren't part of the measures that we've constructed. So, we have now some, the beginnings of some qualitative data for this sample.

Now, what is the importance of following this particular sample? Children enter care at all ages, why focus on a sample that entered into early care? Well, from birth to one year is the highest rate of entering child welfare and one-third of all victims in 2009 were under four years of age. And these early experiences we know impact health throughout life and there is some evidence they may be more important than later experiences. But even if they're not, children who are removed from the home early in their lives are more likely to experience subsequent adversities we are finding either while they're in care or because being removed early in life is a marker of a very severely troubled family.

So, just to put context of the questions that we're asking and why we want to look at them, recent legislation has focused on protecting children of course as always but

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

increasing focus on permanence and on child wellbeing, however that's defined. And so we've been promoting adoptions and kinship care and trying to expedite permanency for children so that they don't have foster care drift and get bounced around for years in the system. And increasingly there is more flexibility and how this is handled rather than looking at you know a particular type of caregivers good assessing the best situation in that particular child's life and promoting wellbeing through you know the best situation you can find for each individual child.

Now, existing research has taught us a lot about what happens at once children have child welfare involvement. But a lot of the research has given us sort of a snapshot a cross sectional look or short-term follow-up either focusing on so many months after removal from the home from an index incident or focusing on a certain age group and so what we're trying to do now with the data that we have available is get more of an overall picture of children from a very early age up until early adulthood. They maybe doing very well at one point and then end up doing poorly and what can we link that to or they may be doing poorly or have learning disabilities and other issues early on and then excel or do well what's related to those outcomes as well.

So, we are trying to move beyond as well administrative data and getting the face to face reports from the caregiver and the youth as they grow up and also our latest school most recently is to move beyond the quantitative data and in reviewing these case narratives, get more of a picture from the youth point of view and from the caregiver point of view and sort of compare that that spontaneous report of what's going on in their lives with what our formal measures tell us.

So, I'm just going to go through five different themes of research questions we've looked at and what their implications are. And the first one is the sort of the end of the story. We're so eager once we reached age 18 to go through the whole case file and find out you know how did so and so end up. You know you started to know of some of these people it's a sample of 330. And so, we've gone now through a couple hundred, we're almost finished constructing these few pages of case narratives just based on what people have said every two years. And they give a lot of informal information that is not solicited.

And when we review that information what we find are early lives marked by adversity, high disadvantage and dysfunction and with the early child welfare involvement, a lot of involvement and services, a lot of moves being removed from the home and then placed in other homes, removal again from that home when there is a report and -- but what we're seeing our kids with multiple problems this is not just the sample of children who experiences maltreatment period. And some of those other adversities that they're experiencing are more salient in what they're telling us. They are talking more about you know after visits with his mother this child is usually quite upset and now that the mother has stopped coming, keeps asking for her. What they're not talking about is the maltreatment, which is of course what we said out to study. They're talking about everything that follows.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

And so following that slice that we took right, had we done the study of early childhood our information would have stopped there, but then what we see is these children go on to have long and chaotic and unstable environments in their lives, they change caregivers multiple times. You can see from time to time we can't do is reach the caregiver they were with, now they're with someone else. It's very difficult to find them. And even in cases where they live in the same household, a lot of instability and who is moving in and out of that household over the course of 14 years and these issues are not unique to particular types of caregivers. We see it in adopted homes, reunited homes and both types of kin and non-kin out of home care. So, it makes it as hard we're seeing very difficult to follow easier.

So, after conducting our sort of first qualitative analysis, we started looking at what the children, what the youth reported when they came of age and it matches very well what the narratives tell us. 80% had a substance abusing biological parent. One in three was exposed to drugs in utero. And by age 18, children report having lived in more than six homes with at least six different caregivers and attending at least five different schools. And 67% of the sample have had a subsequent CPS report after the initial period of recruitment.

And when we looked at outcomes, quantitative outcomes for this sample we found that adrift for sex, abusive substances, and whether they had been assaulted, whether they had assaulted or been arrested were all linked to number of homes they have been in, number of schools and number of caregivers they had had. And time in the current home was a protective factor so if they had been in a stable home during adolescence.

And so, when we think of stability as a type of protection, we became very interested another theme is sort of resilience or positive adjustment of these views and what may predict it. So, we became interested in looking at internalizing and externalizing problems over time what is the development of them over time the growth curves over time. And so, we know that NSCAW data shows that more than 45% of children with child welfare involvement are in the clinical range on child behavior problems. But how does this look over time?

Well here is what we have for internalizing and externalizing problems. It looks like it doesn't change much over time. We don't see heroic stories of children doing poorly and then bouncing back. It looks like resilience for internalizing is around 80% so having positive adjustment and not having an internalizing problem. And for externalizing only around 60% of children don't have an externalizing problem age for. And then it sort of goes downhill. So, looking at the overall rates of internalizing and externalizing resilience does not look encouraging for the sample. However, there are subgroups of children that we identified, right. What I just showed you are rates for the whole sample.

However, we identify using latent variable growth mixture modeling, groups of children who 46% had stable resilience -- I'm showing you externalizing just as an example. 46% had stable resilience for externalize and well that sounds very different than what we just looked at. And then you can see that 23% had this dramatic increase right, so they were

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

doing poorly in age six, a little bit in age eight and are doing well in subsequent ages. And then there is this group who sort of go you know in the middle half of all that, but only 16.5% had stable disorder. So, 16.5% is doing consistently poorly, but all the other children are showing variation and one would assume that that variation is linked to something in their environment things going on in their environment.

So, the predictors that we looked at of resilient factors one of the biggest ones just caregiver stability predicting those more resilient pathways that we saw, early cognitive ability, early social competence and the risk factors, because we saw some changes in those curves late physical abuse, physical abuse in pre-adolescence or adolescence and early sexual abuse. So, caregiver stability of course is something highly targetable. The other one is more or less. And so another thing we've been interested in is what's the best placement type, is it better to place youth with kin, is it better to place them in stranger care, should there be more of an emphasis on reunification, these are the questions child welfare has struggled with and continues to struggle with.

And in our sample we wanted to look at the impact of placement type, but then look at whether that told the whole story and what other variables, what other factors might account for differences in whether or not children are re-reported. So, we found as I said before 67% of our children ended up being re-reported between age four and 12. This is only till age 12. Some were reported after. And this is comparable to other rates, but what about longitudinally? Did these kids get one report? Are they reported constantly? Let's get more of a longitudinal picture of the pattern of the re-reporting. So, as with behavior problems actually the overall pattern and then the groups we identify.

The overall pattern was that your probability of being reported as a foster youth declines over time and this includes all kids, the reunited kids, the kids who stayed in placement, so, it declines over time. But again diversity, we see that the very top group is a high risk group who at each age point receives a report, a little -- a small drop off at the end, but pretty much a consistent risk of being reported every two years at least. You could only get a zero or a one. Some of these kids got 10 reports in a two-year period or more. Low risk is the very bottom, 33% never reported again. I mean it's better to be called no risk. They never re-reported again.

And then again we have two groups in between one sort of had a middle ground of being reported or not each time. And then there is other group, high, high risk of report and then it goes dramatically down. You can imagine things like maybe they were adopted or maybe some other large change happened in their environment during that time. But if we look at it by placement, so these are all those risks I just showed you. In a low risk group not so many reunified kids, right, lots of non-reunified kids. In that very, very high risk group that kept being reported continually over time lots of reunified kids, either kids who are at age four are reunified and very, very low rate for the out of home kids. And then you see at least other moderate and high to low risk groups that reunified kids are also over represented.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

So, this tells us reunification is a risk factor for subsequent abuse, not a surprise to some, but not the only story, because as you can see, non-reunified kids also consistently received abuse at lower rates, but it was not a guarantee. In our analysis we found for example some adopted children received reports across the whole study period. In every single placement type, there were children who continued to receive maltreatment reports. And the other risk factors that we found that above and beyond placement type predicted these poor trajectories of group or with caregiver alcohol abuse, depression, lack of social support, poverty and number of children in the home. So, these were problems experienced not just by biological parents, but by adoptive parents and both types of foster, kinship and non-kin care.

So, why might reunified children face greater risks? We did sort of a more of a close up look at children who at age four had been reunified and then looked at just some of their outcomes at age six and tried to understand what was driving that relationship. The children who were reunified at age four at age six experienced more internalizing problems, greater exposure to instability, family dysfunction and harm. And they also had as you can see a host of other problems that were more prevalent than the non-reunified children, violence exposure, mental health problems with the caregiver, lower levels of parental support. And they were less likely to receive mental health services than children in care.

But reunified children also reported that they were more connected to their social environment than those who were not reunified. So, what the outcome you find depends on what you were studying, it was negative in some ways and yet there were some strengths of reunified homes. So, in addition to type of caregiver, it's very important to think of the stability of caregiver, part of the reason that certain types of caregivers or placements are sometimes favored is that we believe they will lead to more stability, right. We want to put children in a setting where we know it will be a more stable setting. So, we looked at what predicted caregiver stability from age six to eight and what we have found was that being adopted, predicted as stable home environment not surprising, however there were no differences between reunified kinship and non-kin care, which is not what is always believed and not what has been shown in other research. A father figuring the home who supported the child predicted stability and staying in that home.

Female Speaker 1: I'm sorry. Could you be reiterate assuming they're adopted so it didn't matter if it was a kin or non-kin that was adopting?

Laura Proctor: Oh no. So, I'm sort of saying if you're adopted that was a factor that predicted that you would be staying in that home and not be moved around again, which one would hope is the case. However, whether you are -- if you are in foster care, it didn't matter if it was kin or non-kin the same level of instability and change occurred in both of those types of foster. Yeah.

Male Speaker 1: Could you believe you would be related with who [indiscernible] [00:27:58]

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

Laura Proctor: That's what I'm saying. I'm saying kin and non-kin is the foster piece, not the adoption piece.

Male Speaker 1: I'm saying that probably one and the same even in that by 2010 we've had people who kind of adopt out of care, adopted by in terms of what [indiscernible] [00:28:20]

Laura Proctor: That's true, yes they were all fostering before they adopted, that's right. And higher child intellectual functioning and lower child on behavior problems also predicted. So, there was a child behavior piece, where the child behavior predicted and the placement also predicted, but then beyond just what type of placement it was the father figure involvement as well being a very important factor. So, the overall policy implications I just have four of them. It looks busy, but the first is there is no simple answer whether or not to reunify, whether we should favor care with relatives and kin versus not, these are really more -- it makes a lot more sense. It's a lot more sensible to look at them on a case by case basis. It is the quality of the care giving environment not the type of the caregiver and also, that we need to continue monitoring and assessing needs regardless of placement.

In our studies, all placement types face risk. All placement types have issues. So, we don't just want to target one type. And in order to recognize that each case is unique, we need a full assessment. And so, there is an empirical basis for recommending assessment to recognize these potential problems and intervening. And then also to utilize interventions that have empirical support which are available to promote stability and wellbeing as our data strongly support the importance of these longitudinally.

So, we're going to take questions in between each presentation and again at the end, so however you prefer, does anyone and you know the beauty of the LONGSCAN research is that we are still asking new questions with those data. So, if you have questions we like to hear them, because we're going to be working with these data for a long time to come and can continue asking new questions with the data we have. So does anyone have questions? Any questions now? You just want to keep listening. All right, they want to hear you.

Jonathan Kotch: Good morning. I'm Jonathan Kotch and I'm going to talk about the enduring effects of child abusing right from a medical point of view. We use the expression, ACEd, which you probably recognize as meaning Adverse Childhood Experiences of which child maltreatment is one I'd like to discuss maltreatments impact on depression and anxiety which is an internalizing behavior problem, discuss maltreatments' impact on externalizing behaviors related to health, consider whether Adverse Childhood Experiences affect child and adolescent health status and lastly speculate about maltreatment and brain function.

And what I'm sharing with you this morning is a mortgage board of findings from among many different findings some of which are local site findings and some of which are

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

cross site aggregated findings for the whole five site LONGSCAN project. So, looking at internalizing behavior problems first of all and some of this information I'm sharing with you is from Richard Thompson another one of our co-investigators. We've examined internalizing behavior problems in general, which includes depression, anxiety, social withdraw and somatic complaints. And in particular we're interested in depression and anxiety. And we'd ask the question what's the effect of maltreatment on depression, anxiety and childhood and early adolescence.

So, first point early maltreatment strongly predicts the course of depression and anxiety symptoms through age 12 in our population and differences in depression and anxiety begin to appear in the -- between the maltreated and the non-maltreated groups as early as age six. So as Howard mentioned the official start of the LONGSCAN project was at age four and already two years later there was a difference in the depression and anxiety scores between children who had been maltreated compared to children who had not been maltreated. Maltreated children continued to get worse relative to the non-maltreated peers over time. So, this little trajectory shows you how and this is one of Richard's slides how we began to see the divergence and anxiety and the depression symptoms at age six and they continue on to age 10 and if that's been extended further into early adolescence we would see that divergence get even greater.

So, other predictors of internalizing behavior problems among our children with maltreatment include life events, which includes family stress, intimate partner conflict, children's exposure to violence and that is to say their exposure to witnessing violence between others and family, legal or justice involvement. These are some of the things that appear in other studies under that Rubric Adverse Childhood Experiences. We also saw caregiver depressive symptoms as a significant predictor of the differences in internalizing behavior between the maltreated and non-maltreated children. Caregiver alcohol use and lastly whether the caregiver herself had a history of child victimization and I use the term herself not because there is any greater risk associated with the female caregiver, but that it was the female caregivers more than 80% of the time were the respondents in our survey.

So, the implications of some of these internalizing behavior problems are that the effects of early maltreatment persist throughout childhood and early adolescence something we could only discover by having a longitudinal study such as LONGSCAN, but there are other adverse experiences that also strongly predict internalizing behavior problems and for practitioners and policymakers there is a need to be proactive not to rely on caregivers to identify depressed or anxious children who need help, but the children in the child welfare system they need to be assessed directly to determine whether or not they have any of these internalizing behavior problems.

Moving on to externalizing behaviors and specifically aggression, with our sample which started out with 1354 children, we could ask the question do different types of maltreatment have different effects on the risk of aggressive behavior depending upon the age at which the maltreatment is experienced. It turns out that there are differences in maltreatments effects according to age. When we looked at caregiver reports of

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

maltreatment early on age four, age six and age eight years, we didn't find any significant effect of early or what we call that the time recent physical abuse on the child's risk of being aggressive through the age of eight, but there was a significant effect of early report of neglect on child's risk of aggressive behavior through age eight and I think that resonates with some things that Laura said about differences between early exposure versus later exposure.

If we look specifically the numbers in this particular study, we see that the only significant predictor of aggression in children by the age of eight was they are being reported for neglect in the first two years of life, being reported for neglect in the next two years of life, being reported for abuse either between the ages of two and four or between the ages of zero to two or between the ages of two to four, neither of those physical neglect reports -- start again neither those physical abuse reports were associated with childhood aggression by the age of eight.

But looking beyond, looking at aggression in children who are 12 and 14 years old, in this case for boys there was a strong effect of physical abuse that occurred prior to age 12 and they're being aggressive at age 12 or age 14, but in this case there was null effect of neglect. For girls it was neglect that had the stronger effect and no effect of physical abuse. So, here we're beginning to see an interaction between age and gender among the children who had been maltreated either neglected or abused earlier in life expressing aggressive behavior at age 12 or age 14.

So, early maltreatment predicts teenage aggression and delinquent behavior, but early services may reduce the risk of aggressive behavior. So, there was a window during which they might potentially be the case that services could interrupt this transition from physical abuse or neglect prior to age 12 and aggressive behavior at 12 and 14. So, one of the messages from LONGSCAN that we've been advocating is we need to pay more attention to neglect. Neglect of course is the most frequent form of maltreatment. It doesn't get as much attention as it deserves. I think Howard got a paper called the neglect of neglect or something like that which still remains the case. The relative impacts of neglect versus abuse may be different. They may be different according to gender and they may be different according to the age at which neglect or the abuse takes place.

Another behavior we're interested in is risky sexual behavior because that has implications for future health status of these children. Is early maltreatment associated with risky sexual behavior? Is there a difference according to the type of maltreatment? Is there a difference according to gender? So, it turns out that maltreatment before the age of 12 is significantly associated with early initiation of sexual intercourse at age of 14 and 16, but we would get the same results for sexual abuse alone and for all maltreatment combined excluding sexual abuse, so both of those types of exposure to abuse early are associated with initiation of sexual intercourse at age 14 and or age 16. And there are gender differences in relationships with the same for males and females for sexual abuse, psychological abuse and neglect, but the relationship between physical abuse before age 12 and sexual intercourse at age 14 and 16 is less strong for boys.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

So, a history of child sexual abuse is associated with the development of risky sexual behavior, physical and emotion abuse, but not neglect or witnessed violence each contribute to risky sexual behavior over and above the role of child sexual abuse. And lastly, the child gender moderates the findings for physical abuse specifically. So, we need to take away the message that any maltreatment, not just sexual abuse, can lead to risky sexual behaviors in both boys and girls. And from a health point of view some of these risky sexual behaviors may make young people more at risk of HIV AIDS or for that matter any sexually transmitted infections.

And this is a list of some of the other findings that we've seen and this is just for the North Carolina site which AKA the southern site. Aggression at age 18 is significantly increased among maltreated kids versus non-maltreated, delinquencies increased, substance abuses increased. It's remarkable how much contact with criminal justice our entire population had, not just the kids who are maltreated. This is a reflection of the fact that we selected children who were at risk and it turns out there were at risk for a lot of things not just at risk for child maltreatment.

Weapon carrying was an important phenomenon that distinguished the maltreated and the non-maltreated group. And also having a serious health problem interestingly enough was different whether the child had been maltreated or not maltreated and of course these are longitudinal observations, so we can say that it was the maltreatment that came first that resulted in more serious health problems later on.

So, in the case of our study, we wanted to replicate some of the observations coming out leading at all about the Adverse Childhood Experiences study. That study is a retrospective study as you probably know. We tried to ask those same questions prospectively. It's a particular exposure or risk or the combined effect of many risks that predicts later health and developmental disorders and we were able to do this for the North Carolina sites specifically looking at these adverse childhood experiences, psychological maltreatment, where four different kinds of maltreatment whether caregivers use substances or alcohol, whether the caregivers were depressed, whether caregivers themselves were being treated violently or whether there was criminal behavior in a household.

And it turns out that the greater number of adversities during the child's first six years of life is associated with caregivers and children's report at age 12 of somatic complaints, physical problems and any poor health outcome and so this is a score, it isn't telling us which of these particular adverse experiences is the problem, it's the more of these you have the more like it is you have somatic complaints or you report to us any poor health outcome. And then during the second six years of life those childhood adverse exposure scores are associated with any health complaint, children's report of poor health child and caregiver reports of children's somatic complaints and illnesses requiring medical attention. So, was looking at adults retrospectively, but even in these children we can see you know by the time they reached the age of 18 some of the same health concerns emerging early. So, the implications for this is that all at risk kids are vulnerable of

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

health concern somatic complaints. These risks add up. There are differences between maltreated and non-maltreated, but the differences are not great. And the adverse outcomes include potentially serious health problems not just health risk behaviors. These kids are already having health issues by the time they're 18.

Looking at cumulative risk, we did another study in North Carolina and we expanded that list of seven risk factors now through a risk of 10. You'll notice in this case child maltreatment is not among the adverse exposures, because we're hoping to predict whether or not a cumulative risk predicts child maltreatment and -- sorry this is a little off the slide, but looking at relative risk and its ability to predict maltreatment, you'll see low risk, low risk of a maltreatment report, medium risk, medium risk of a maltreatment report, high risk, high risk of maltreatment report and we're measuring risk by the number of those risk factors that you saw from among the first 10 on the previous slide not any particular risk. So, risk score is directly associated with risk of maltreatment in the first year and look at this by the age of 16, there is little a direct relationship between a number of risk factors reported by the caregiver or the child and the risk of a maltreatment report in the first 16 years of life.

Being more I need to go quickly this just reiterates that same information about clinical risk, but in this case we're predicting children's behavior using the same tool that lower reported on child behavior checklist, we do see a significant increase in externalizing behaviors for these cumulative risk groups that are significantly different according to the number of risks that the children experience. So, it's not just life events per se. It's the course of a child's life and the number of adverse experiences may be more important than the nature of experiences that a child would be exposed to.

Moving directly on now to the last few slides about brain function, in North Carolina I'm not supposed to give away the fact that the southern side of North Carolina so I apologize for that. We were able to get some pilot money to look at brain scans on six of our graduates of the LONGSCAN project at about the age of 24. And in this process we exposed the subjects to 100 images some of which are geometrical like it will be squares, like it'll be circles, we have a series of pre-selected neutral photographs you know flowers and trees and birds and bees and then we have some very gross and grotesque and frankly horrible pictures of burned babies and disembowel people and limbs on the ground.

And these things flash by people's screens at a second at a time, one second at a time and we give them a test they are supposed to push a button that tells us whether or not they see a circle while all these images are going around and we repeat this 10 times. They're in the scan for about an hour all over across the course of the hour they see about a thousand images and they get pretty sore thumbs, but we were able to then measure their brain waves while they are doing this and as you notice from the previous slide we had six LONGSCAN graduates three of whom had been victims of maltreatment, three of whom had been exposed to violence between others and then we recruited six controls.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

And among researchers and now I can share with you that we got them through Craig's list and we're able to match them according to their age and their gender and then we looked at the differences and the response to the thumb button pressing between people who are victims and people who are controls and the people who are witnesses and the people who are controls. And then we could localize the difference in the anatomical functions in particular brain regions.

And so what you see here are not actual photographs of people's brains. It's rather a composite showing us where the major differences were between the child maltreatment and the child witnesses, drivers and the control. So, if you have very dark or very red colors on here, it shows us a specific anatomical area where there were statistically significant differences and brain function between our graduates of LONGSCAN and the match controls. And you can see a lot in this cortex cortical area prefrontal cortex area and we know that the prefrontal cortex is where your executive functions are being processed, so some of our subjects are likely to have some differences in the way that they process information and the way that they use their intelligence.

So, the implications here, adverse childhood experiences including, but not limited to maltreatment are cumulative, adverse childhood experiences leads both to later health and mental health consequences; adverse childhood experiences may also lead to neurological changes, question mark, do we think these are mediated by chronic stress and the hypothalamic pituitary axis and lastly our findings are strongly underlining the importance of early intervention. Thank you. You probably recognize something. The first girl who was reported for child maltreatment in New York by the New York Society for the Prevention of Cruelty to Animals, you remember that story. Well, that's her name, the story, oops I'm sorry Howard. Why isn't just going the way it should go?

Howard Dubowitz: That cannot forward.

Jonathan Kotch: Here we go. I supposed to remember that.

Howard Dubowitz: Just gave my talk.

Jonathan Kotch: Here we go, Mary Allen. Mary Allen, okay. Howard, it's up.

Howard Dubowitz: We will take some questions now.

Jonathan Kotch: I'm sorry. Any questions now or hold on till the end, yes ma'am.

Howard Dubowitz: We need to get to the -- sorry for recording.

Female Speaker 2: I'm wondering how you...

Laura Proctor: We can hear you.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

Female Speaker 2: Okay. I'm wondering how you distinguish between abuse and neglect, because it seems like in most household there is not specialization that most use experience, sum of both makes someone you know how you just were able to kind of dichotomize or whatever separate out there?

Jonathan Kotch: Yeah that's a very astute question. And the way we defined it would be -- first of all we were using reports, but we went to the local child protective service agencies and went through their records and we would frequently classify the report according to our own system based on Cicchetti and Barnett, which we call the Modified Maltreatment Classification System. So, there might be a report that said neglect, but we went back and after looking through the record, we were reclassified as abuse.

Some of these research definitions might tell us that there was any abuse or any neglect which means it could be over the course of the trials' lifetime a combination, but they have to at least have been abused, but for other analysis we would say only neglect or only abuse in which case we would isolate them. And I'm sorry that because of the nature of this presentation I wasn't able to actually distinguish where we use the definition any abuse versus all the abuse, but we can do that and we have done that and for that matter you can do that, because Howard will tell you how you can get your own copies of our data.

Howard Dubowitz: Other question. Okay, and that's something a little bit different. I'm going to focus on dads and some of us LONGSCAN is off fathers, I'm very interested since we were gathering all this information about these kids and these families that an important and often overlooked aspect of their lives concerns what's quirked with dads. And again I'm going to give you a glimpse of a few of the studies that we've done; one that really was interested on the issue of fathers and child neglect. What's -- just where we have brief background.

It's striking how even though we've had this ecological model or theory that we've touted for many years right, about how everything in the environment influences kids and can also influence child maltreatment that when you take a look at the literature there is remarkably little on fathers pertaining to child maltreatment and most of what's there concerns the problem of absent dads and I should say with the area of sexual abuse where most of the perpetrators are men and often fathers there, there is some.

Looking more broadly at the literature on child development, this considerable research that in general has shown how dads can enhance kids' development, but even there is a lot less on high risk and minority families, lot of it is more on middle class and white families. So, one of the questions we posed was does the positive involvement of a father protect children from neglect. And you might ask how did you define father? And once upon a time maybe that was straight forward, but today as you know we have many permutations and we deliberately used a liberal definition.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

So, when I talk of father I'm also including father figures so we try to pull for the bio-dad, but if he was not involved we then asked if there was someone who is like a father and who had reasonably frequent contact with the kid at least once a month actually most of them had at least once a week or better. So, what do we find? Interestingly, we found that neglect was not related to whole bunch of these characteristics of the fathers actually whether they were present, living in the home or not, whether they were married, whether it was the bio-dad or boyfriend making a financial contribution and even when we looked at videotapes of their behavior and now nurturing they were all of those some of those are surprised did not relate to whether the kids were neglected.

But one finding that was striking was that when the fathers felt that they were less effective, they were less satisfied with themselves as dads, that's where neglect was a problem. What are some of the possible implications of this? One is remember I said it didn't matter if it was the bio dad or not that I think it's important for our field to have a broad view of father beyond the bio status, beyond whether or not he is living in the home, and even they issue a financial support bear in mind that these were mostly poor to very poor families and so there wasn't that much variability in financial support.

Another clear implication is how can we figure out, how to better help fathers feel competent about parenting, how to encourage them to be involved in their kids' lives and also importantly to impart parenting knowledge and skills. I've worked for many years on the west side of I'm going to give away the site I guess a big Houston City, Baltimore and it's striking how many of the men feel this is my clinical impression supporting what the research is showing, poorly prepared particularly with the young kids what to do, how to handle situations and so here we get further support for the need to help them be these better dads. And so particularly for high risk fathers or families, there is a need for us to find and offer effective implement -- interventions.

Okay, secondly, we were interested to look at families where dads were involved and how the kids were functioning when they were six years old and the questions we posed here was is the presence of a father associated with better functioning, are the kids' perception six-year-old kids' perceptions of the father support associated with better functioning. So, this is actually if you think about it quite interesting where you're taking six-year-old kids and asking them about their relationships with their dads and then assessing how it relates to how they're doing.

And again we were interested to know where these associations influenced by whether it was the bio dad or someone else and also whether race or gender of the child mattered. What do we find? Here we found that actually when the dad was present was involved in the kid's life that it was associated with the kids doing better cognitively and feeling more competent about themselves. Also, the kids who reported more or better father support strong, good relationships were less likely to be depressed and again reported greater social acceptance by peers and others.

So, again looking at the bottom line interesting how the associations didn't differ, if it was a boy or a girl, race or whether it was a bio dad or not. So, accounted to some of the

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

stereotypes we see at least from the study some interesting findings. What might be some of the policy and practice implications? This might sound almost silly, but I really think there is a need to convey to many fathers how children, boys and girls, can benefit from their involvement. It sounds like this should be a no-brainer, right. Well, I can tell you again I think from the data, but also clinically it's striking how not everyone is aware of this also by the way many moms are not always cognizant of just how important this contribution can be.

Once again we see support for a broad view of father beyond the bio status. We see something valuable in asking the kids themselves in this case about the relationships with their fathers and this is both clinically and for research such an important issue that sometimes gets overlooked obviously the kids can be terrific important sources about this information about their own lives. And when we are looking as clinicians at kids' emotional and behavioral problems, it's important that we also think about the role that dad maybe playing or not playing.

Okay. Thirdly, we looked at the effect of fathers or father figures on kids' behavioral problems and this now is among families who had been referred to CPS. And here interestingly, we find that father presence alone did not affect behavioral problems at age four. This is by the way been a lively debate for those of you who followed the father literature is does presence alone make a big difference or if mom is supported by her mom, so you have two adults carrying the pleasures and burdens of child care will that be sufficient, is it something different about fathers and at least here we find that it did not affect the kid's behavior at four.

But when we look at the kids at age six, we find that father presence was associated with less aggression and depression reported by the teachers, so from a design standpoint this is quite important, because typically teachers don't know much about what dad is doing and we found that particularly among the African American kids that those without a father were more aggressive and depressed.

The implications once again the importance of recognizing the many influences on kid's behavior and I think this is I am sure not a big surprise Jonathan, I think a few times mentioned that in addition to the maltreatment is a lot about the stuff naturally going on in these kids' lives that can be very consequential. We see that particularly in African American families involved with CPS having dad involved appears to be particularly important and once again the \$64,000 question is how can we find good ways to help dads be positively involved in their kids' lives.

And I think this is the final study I am going to talk about and we were interested to find out what might be some of the barriers facing low income African American dads to being involved and in this case in their eight-year-old kids' lives, so trying to get a qualitative sense of what were they up against as they aspired to be good fathers. In this case about half of the study comprised of bio-fathers, 20% by mother's partners, a few stepfathers and uncles. And I am going to just give you briefly a flavor of their

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

responses. I won't go through all of them, but very, very prominent was the problem of financial limitations.

So, asking them what do you like least about being a father to your child and the dad answers that material things are so important and I want to be able to give him everything. I do provide for him the necessities, but the accessories, the things that other kids have it's hard and I don't like not being able to do that and it's hard to explain to a kid why. So, poverty and financial limitations makes it really tough for these many of these dads to do what they see as an important part of being a father.

In other instances their jobs, their work career was a barrier and so when asked what would you change in your relationship with your child one of them describes working the job that I do a lot of times I have to leave out late, I will be gone late and that only leaves weekends for me and him. I'd like to spend some time with him during the week not just stopping by his school to check on him. So, for some clearly work can be a big barrier. Not surprisingly for some of them a barrier was the relationship of the kid's mother and so what makes it hard to be the father you want to be, right now it's the wife, the mother, her mother.

We don't get along as good as we could. It's mainly because of her in my opinion I do not -- gracious, I do not want to go into details. It's kind of personal. If things were not the way they are, things would be a whole lot better for me. So, tension or conflict between parents can obviously be a big barrier. On a more positive note 25 of the dads really described no barrier, so what makes it hard to be the father you want to be, I guess I am the father I want to be. I really don't have a problem no one is perfect you know, but right now I don't think I'm doing a bad job. So, that's nice to hear too, right.

What are some of the policy and practice implications? I think it's striking it's important to say that as we look at dad's involvement in their kids' lives that addressing poverty and the many barriers, the many burdens that go with it, is especially important for so many low income fathers the need for flexible work policies. We've made a little bit of progress but not that much and certainly this is something else that could help. I mentioned what seems obvious and that is helping fathers and mothers recognize what's in their kids' best interest. So, both making the point of how much kids can benefit from having dad involved and also I think as we know well that if there is tension or conflict that a cardinal role should be to try hard to keep the kids out of that and then I didn't show you these data, but also for some of these men improving access to healthcare and particularly substance abuse treatment is also needed, those two are barriers for some.

Just to give you a taste of some of the remaining questions that we are hoping LONGSCAN might answer is doing more about what role do fathers play in helping some kids be resilient, so Laura showed nicely how not all the kids are doing badly, some are doing quite nicely and we need to learn much more about what's contributing to that. Also, what explains why some fathers are more involved in their children's lives, so I think a lot of effort and energy has gone into understanding the barriers, the problems, why they not, but learning from those who are doing well, I think would be good.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

We still what I showed you was all the pre-teen years, so we have lots to do with regard to teenagers and their relationships with their fathers. That's going to be interesting I think having lived through that, survived. And then particularly what role do dads play in teenagers' development and behavior? So, that's a glimpse of some of what we've been up to over the past 20 years particularly I just showed a few of the studies that we've done in trying to get a better handle on issues of dads in relation to child maltreatment treatment.

Here you see the LONGSCAN website. There is lots of good stuff on that. Also, I think this whole presentation is going to be available on the Summit website. So, we do have some time and as the plenary session said we want to have discussion, so again you are more than invited to for all three of us actually and if you want to stop with father but we should move on to whatever.

Female Speaker 3: I have a question about the fathers and you sort of alluded to it about substance abuse, but did you collect any data on father factors and I'm thinking of violence or criminal history or substance abuse that related to whether you know how protective how much protective factor they were for the children's outcomes?

Howard Dubowitz: Right, so just to be sure I understand the question it's did we -- to what extent did we examine particular characteristics of the fathers such as the substance use, violence, maybe criminal histories and how that might have related to how the -- what is happening with the kids.

Female Speaker 3: Right.

Howard Dubowitz: So, we have quite a bit of data certainly about substance use, do we have -- I think we do have on criminal behavior, do we? Yeah we do have that, but you're raising some good examples of some items that we haven't yet actually carefully looked at. So, particularly I am thinking of the criminal behavior there we have not looked at that. So, I think you're right. It's an important issue of trying to get a richer characterization of these men and see how factors such as those you described might be playing a role. Thank you. Other questions? Someone brave?

Female Speaker 4: Were any of the families receiving home visiting services? I wasn't sure if that factor was looked at as a possible variable.

Howard Dubowitz: Okay, so an interesting question, were any of these families either I mean this applies I guess throughout receiving home visitation. So, LONGSCAN by itself is really what's called an observational study. We're looking to understand and we ourselves did not offer interventions except in extreme circumstances for example, if a kid describes suicidal behavior, but as you can imagine these families were engaged with other agencies in the real world and often with CPS. So, in fact a fair number of them were receiving a whole variety of services, not just home visiting, but some might have been receiving substance abuse treatment, mental healthcare, other early interventions.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

And so, the difficulty that often applies in studying the impact of this is that quite often those that are particularly in need of a particular service, let me say substance abuse treatment are more likely obviously to be getting that treatment right. And so, when you look at that subgroup, you might find that actually they're doing relatively worse, because they have that problem even though they're getting that help. So, it's not a setup where you can randomly assign some folks to get home visiting, some not and then compare outcomes, but Laura, Jonathan you want to add to that?

Jonathan Kotch: If I'm not mistaken the direct answer to the question is I don't think we collected data on home visiting, but we have data on a lot of other social service interventions, but Howard's observation is a confounder in you know research terms that is hard to separate out whether or not the services are actually being effective because we weren't able to randomize them. We were just observing them.

Howard Dubowitz: Someone else? I've seen, yeah I think for this recording they want you to use the mic.

Jonathan Kotch: No, the mic might be movable, if you can pull it out of the stand.

Howard Dubowitz: Or just scream.

Female Speaker 5: I just wanted to ask if you're compiling the data on the people that you no longer aware whether it's mortality or pregnancy or moving from state to state if you're keeping track of all those things.

Howard Dubowitz: Right, so just to be sure everyone heard or the recorder somewhere, the question is for those who were no longer involved in the study is that right, how able are we to track what's going on with them. Well we try. We try very, very hard to find out what's happening. As you can imagine if someone has bowed out of the study told us we're out of here and we've some who have done that, then we are obligated to respect that right.

However, there are data that are part of the public record and so we have -- a planning we haven't actually done this here to look at for example mortality data and also adult criminal records can be done you know that's part of the public record not for kids that's a whole big barrel of worms getting into that. And then for the many who are still more or less with us, we do try very hard to track how they're doing and so for example in our site actually just in the last month or two, we've been touching base with our participants asking them questions about work, school, career, romantic relations, having kids, so we are certainly interested in continuing to follow them and what we've shown you ended at age 18 and we're hopeful that we'll actually be able to continue to study this group into their 20s. There is some glimmer of hope on the horizon there.

Laura: Well, and I would add that when people move out of state we sort of follow them and we fly people out to where they now live and so we do continue with people when

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

they move. We've followed and following it sounds like we're stalking them. We follow runaways for example. We've had some -- we have you know we have their permission and their contact information for their families or other contacts so often you know people know where they are even if they've gone quite far, so we have a very determined field set of field staffers who've been very good at tracking them out of state, so moving out of state is not necessarily being lost which is good.

Howard Dubowitz: Also the internet helps quite a bit so.

Laura: Yeah.

Howard Dubowitz: So, you can find people more easily, I wouldn't say easily.

Jonathan Kotch: I alluded to the fact that these data are available to other researchers and the national child abuse neglect data archive is at Cornell and every time we finish a data collection cycle, we archive our data with the Cornell researchers. So, right now all of the LONGSCAN data up until the age 14 data collection point are available through the Cornell Data Archive and we anticipate that by the end of next month we will archive the age 16 and age 18 data that were collected up until June 30th but we as investigators retain a prerogative on the first two years of data, so it will only be the LONGSCAN investigators, who have access to the data for age 16 and age 18 for the next two years.

So, when we're back here in 2013, we'll announce that the data are all archived and all available for researchers, but they are all available now up until the age 14. And Howard mentioned mortality. We are eagerly awaiting a report from the National Fatality Data Center I think they call themselves for death records on the children who had been in LONGSCAN in North Carolina. We did a preliminary look and we did find what we would consider to be a higher mortality rate than we would have expected in our population generally and so, we're hoping we only get this information for all five LONGSCAN sites. We may be able to determine for the first 16 years what were the causes of death in our population.

Howard Dubowitz: Sure.

Female Speaker 5: I'm quite pleased. I don't...

Laura Proctor: Pass it on.

Female Speaker 5: Are there any plans to collect more biological data I was asked to ask that question and the question I also had was actually for Laura about the qualitative data I know the quantitative data are available through Cornell and they do a summer data camp every year, but will the qualitative findings also be archived at some point?

Laura Proctor: If we are funded to formally collect qualitative data that would be a separate agreement than the original funding agreement with the archive, but it's I would not rule it out. So, right now it is not slated, because the qualitative data I described that

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

we've done so far are very much our own effort, so future archiving would depend on the funding agreement.

Jonathan Kotch: If I can answer the second question first and then I go on to the first question each of the five sites is participating in a project funded by the Doris Duke Charitable Foundation, which will give us the opportunity in some sites to bring back a handful, a small number of graduates of LONGSCAN and we will do some focus group or other kind of feedback sessions with them with the intention of actually generating some recommendations for policymakers and practitioners from the children themselves, so we're now you know between the ages of 24 and 18. So, we're looking forward to that, but that's a two-year process and we'll have a National Meeting in January of 2013 I think and we may invite some LONGSCAN graduates to that.

With respect to the biological data, you know the brain function study that I mentioned was just a pilot that I had received, interim euro funding for, but we are interested in getting funding for doing many, many more of the North Carolina subjects and when we do that we collect survivor samples and we have collected I think they're mouth washings for chromosomal and genetic analysis and in fact I'm negotiating right now with a colleague at Duke to do methylation studies on some of the DNA data that we've collected from those 12 subjects, who were in our FMRI study. And if NIMH or NIDA see their way clear to awarding us a grant one day, if I ever get around to riding one, then maybe we'll be able to do it for as many of the North Carolina subjects as we can recruit back and if that's successful then we might have a platform to go on to do it with other sites as well.

Male Speaker 2: I have the mic.

Jonathan Kotch: Go for it, sure.

Male Speaker 2: Okay, had a couple of questions. That's a lot information, thank you. On the brain scans you said in the executive functioning that you just said there were differences, but what were those differences between the groups?

Jonathan Kotch: I can't answer that. The reason is that the numbers are too small. All I can say is that you know if you had you know dark blue that means that those areas were function are over functioning and if you had dark red, those areas are under functioning but what that actually means in practice I don't know. We actually did do pencil and paper executive function testing on these subjects. We haven't had the chance yet to attempt to correlate the brain function studies with the paper and pencil test. I would be skeptical that we actually find anything significant with just you know six pairs of subjects, but that is our intention you know with larger study so, we're asking the same question I hope I'll be able to answer it for you.

Male Speaker 2: And my other question is earlier in the presentation Laura talked about child maltreatment, stability, permanency and what were some of the other possible characteristics in the resiliency of those children?

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

Laura Proctor: What do you mean other characteristics?

Male Speaker 2: Well other than being maltreated at an earlier age.

Laura Proctor: Great.

Male Speaker 2: Being high at risk and having less moves or being adopted and being positive you know characteristics, not all characteristics, but -- what did you see any other type of maybe individual characteristics or social characteristics that have better outcomes or that predicted better outcomes for those.

Laura Proctor: So, things within the children themselves necessarily or just other factors that were promoting positive functioning?

Male Speaker 2: Both.

Laura Proctor: Okay, well you know what I presented was just the internalizing and externalizing and now that they're getting older, we're also looking at as we saw some of the risky behaviors and drug use and things like that. So, in part it sort of depends what outcome you're looking at, what provides protection. I mean the factors that I suggested like positive cognitive functioning and things like that, the child factors those are well known in the literature. But what we're seeing -- what we want to find out next is the different markers of stability as stability only being in the same household or you know you can be in the same household for 10 years, but it can be a very unstable household. So, what we've been seeing is lower exposure to the different multiple adversities promotes positive functioning, less school changes, less home changes, but in terms of other factors besides the ones I presented we're still looking -- were you thinking of particular factors that you're interested in?

Male Speaker 2: Well, I was thinking of you know like a positive role model or a mentor or home visits you know some of those other characteristics that we would think...

Laura Proctor: Right.

Male Speaker 2: Would influence them positively...

Laura Proctor: If you looked at mentoring, other studies. We look at social support the way that we've measured it is social support either of the caregiver or of youth, but we're really just beginning to delve into the teen data. So, I think a lot of that it's going to be kind of proximal like the behavior of the parents, the different role models they have. I think that what you're saying kind of comes from the instability it's very hard if your relationships are not stable you know to form that one lasting. So, in some ways the question you're asking it's only becoming answerable now, because it's not did you have a mentor when you're 14 for two months when you were in that home, right it's did you have someone who really over the years was there for you.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

Jonathan Kotch: If I can address that as well we do have a presentation in which we're hoping to turn into a paper that looks at the question of social capital and it isn't just about foster care, but for the whole LONGSCAN population we were able to demonstrate a significant interaction among whether or not the child have been reported for maltreatment, whether or not the mother scored in the clinical range on the CESD depression instrument and what the child's aggression and delinquency behavior outcomes were.

And as you would predict, when we added social capital to the mix that the interaction with depression was significant, so it was in the group whose mothers were depressed that social capital, which we measured using collective efficacy as the variable the outcomes for the kids with maternal depression was better if they had higher levels of collective efficacy. So, something where we trying to branch out a little bit and see whether we have enough information on that data to look at neighborhood characteristics and other kinds of support and it appears to have a relationship, but the mother's depression was you know key to interpreting that relationship.

Male Speaker 2: Do we have time for one more?

Howard Dubowitz: Sure.

Male Speaker 2: Regarding the re-report data.

Laura Proctor: Yeah.

Male Speaker 2: I was wondering if there was a subset of participants who re-reported more frequently than others and if their outcomes were different?

Laura Proctor: The outcomes, we still haven't quite put together the piece of the subsequent outcomes, but yeah what was shocking that there is a group who has reported every two years at least like clockwork. So, you know we sort of collapse the data into a two-year chunk, maybe they've reported several times during that time, but it's shocking and I've gone through case by case someone who has adopted early and yet receives a report of maltreatment at least once every two years through adolescence, what's going on with that, I mean that's in part why we want to do more qualitative work, but yeah there is definitely a subgroup of kids who just keeps getting reported and they happen in all placements those kids.

Howard Dubowitz: Sure last question.

Female Speaker 6: I would [indiscernible] [01:28:09] or not.

Howard Dubowitz: Yes we did.

Session 4.08 – Lessons Learned From LONGSCAN: Key Findings From a 20-Year Prospective Study of Child Maltreatment Antecedents and Consequences

Female Speaker 6: Have you done -- you have data about children that are incarcerated on your study.

Laura Proctor: Do we have data on children who are incarcerated is the question.

Female Speaker 6: You know that become incarcerated, because I run a shelter and about 25% of the children that have come through there end up incarcerated and I was just wondering if you had any data on that.

Howard Dubowitz: Sure.

Laura Proctor: In the Southwest site, we continue to interview them when they're incarcerated. I'm trying to remember right now I've been tracking placements by age 18. I really don't remember, but it's around 5% I think of kids are incarcerated and we continue to interview them so we are going to be publishing data on that in the future. It's...

Female Speaker 6: And what about intervention you were talking about early intervention, do you have any data on kids that are receiving counseling and kids that aren't?

Laura Proctor: Yeah, we have measured since age four whether or not council service -- the caregiver identifies the services were needed and then what type they thought the child needed and then whether or not they were sought and received so we have those data as well.

Howard Dubowitz: So, I just realized we've committed one of the big no-nos of such a presentation. We forgot to acknowledge and thank the Office of Child Abuse and Neglect.

Jonathan Kotch: Oh, we did it Howard, right at the very beginning.

Howard Dubowitz: Oh, I forgot.

Laura Proctor: Before the recording started remember?

Howard Dubowitz: Really? Maria has actually been our Project Officer, so I feel like really bad, but this has been an incredible effort and investment as you can imagine for 20 years to sustain this project and so we are really, really grateful and grateful to all of you for coming. Thank you.