

# Do all babies have Wonder Weeks? Here's what the research says

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## SUMMARY

*The podcast episode explores the scientific validity of the Wonder Weeks concept, which suggests that babies undergo predictable periods of regression followed by developmental leaps. The host critically examines the original research conducted by the Ploys, highlighting methodological flaws, sample size issues, and the lack of rigorous peer-reviewed studies supporting their claims.*

- *The Wonder Weeks concept, developed by Dr. Fran Ploy and his wife, posits that babies experience regression periods followed by developmental leaps.*
- *The original study had a small sample size of only 15 mother-infant pairs, raising questions about the reliability of the findings.*
- *Many of the supporting studies cited by the Ploys are outdated, primarily consisting of books rather than peer-reviewed research.*
- *The Ploys' methodology included subjective self-reports from mothers, which could be influenced by various external factors, including maternal stress and depression.*
- *Subsequent studies attempting to replicate the Ploys' findings have produced mixed results, often failing to confirm the exact timing of regression periods.*
- *The episode emphasizes that the Wonder Weeks framework lacks robust scientific backing and is based on a limited understanding of infant behavior.*
- *The host calls for further research to explore the complexities of infant development beyond the simplistic framework proposed by the Wonder Weeks.*

[Music] hello and welcome to the your parenting Mojo podcast have you seen the Wonder week's book or did you download the app the book has apparently sold over 2 million copies and the app has been downloaded over 4 million times so the approach has certainly struck a chord with parents it seems to help that the book was developed by two phds Dr France Ploy and his wife heti vandery Ploy whom

I will refer to together as the PLO and I know that when I see PhD following the name of an author I perceive the author as having some credibility they've now been joined by their daughter zavia plas Ploy as the CEO of the Wonder weeks apparently heti actually died quite young in 2003 so when you hear me refer to Dr Ploy later in the episode is Dr Fran Ploy so in this upcoming pair of episodes I want to ask two overarching

questions in this first episode we'll ask is the idea of Wonder weeks backed up by scientific research and then in the upcoming episode we'll ask okay based on what we learned here in the first episode what if anything should we do with the ideas in the book to help us and our baby so if you're expecting or you have a child under the age

of one this episode is very much for you let's get started with our first question and

look at the scientific research behind the Wonder weeks so France Floy studied biology and Psychology his wife Heti studied educational psychology and anthropology and together they observed chimpanzees with Jane Goodall in Gombe National Park in Tanzania between 1971 and 1973 Fran obtained his PhD in the behavioral development of chimpanzee babies and Heti got hers in mother baby interaction in chimpanzees because these dissertations were submitted in the early 1980s unfortunately I couldn't

find any copies online possibly as part of their dissertation or in related work the employees noticed that baby chimpanzees seemed to go through a series of what they termed regression periods by which they meant a return to behavior like clinging to their mother and nursing often which they hadn't done so much only a week or so previously the ployes hypothesized that each of these regression periods was followed by a developmental leap and they wondered whether similar periods

might exist among human babies several previous researchers had generally coalesced around the idea that there are four major behavioral transitions in human babies and in the late 1980s the PLO began a research project to see if these were all of the transitions or if they could find any more and they decided to do this by identifying periods of regressive behavior in babies because there was agreement in the literature that these regressive periods accompanied developmental transitions they say that this

literature finds that some sort of transitions do exist and that these occur at 2 7 12 and 18 to 21 months unfortunately the literature here mostly consists of books rather than peer-reviewed papers it's not an exaggeration to say you can pretty much publish anything you want in a book that's why we have the peer review process in journals so other people look at papers before they're published and check that they are grounded in previous literature it isn't a perfect process by

any stretch of the imagination but at least you know someone who knows the subject has checked it out the ployes cite 13 authors or sets of authors in support of this claim so I tried to track each of them down unfortunately seven of them were book chapters or books themselves and of course these are books published in the 1970s and 80s so I wasn't able to get a hold of them one paper was a discussion about

relationships between peer infants which isn't really related to what we're talking about one was a newsletter one was peer-reviewed and talked generally about development but not specifically about developmental leaps two papers by the same author did talk about shifts in development but didn't specifically say at what ages they occur one of the 13 papers by McCall and colleagues published in 1977 did specifically discuss finding shifts at 2 8 13 21 and 30 to 36 months so they agree with the

ployes that there's a shift at 2 months but other than that there's complete disagreement on the timing of the shifts they cite other research indicating hypotheses about more regression periods and conclude quote only after the regression periods are firmly established can one address the quest for the number and the nature of the biobehavioral transitions so this is what they set out to do the ployes were looking for the same kinds of

regressive behavior that they had seen in chimps

which was seeking proximity to a preferred individual usually the mother when they worked with these chimps they would primarily use direct observation watching The Chimps each month until they had 300 total minutes of observation time they wanted to see if they could identify regression periods using a questionnaire and interview format with human mothers so they developed a questionnaire that they gave to mothers who agreed to participate in their study in their paper they said the questionnaire asks if the child was more

fussy than usual if they were looking for more body contact if they were sleeping less if they feared other people had more childish behaviors ate Less in a meal had problems in changing and dressing seemed to decrease their activity wanted more cuddles from Mom and cuddling things other than Mom obviously not all of these things happened from the earliest ages the first ones on the list happened at the earliest ages and continued and the later ones on the list happened as more

as the babies got older as an additional source of information a subset of the mothers were asked to record the infant's location and the kind of interaction they were involved in for an entire day once a week the so-called check sheet was divided into half-hour periods and the mothers were asked to record whether the baby had spent time on her lap in contact with her within 1.5 MERS of her in its play pen in a chair or in another room she also noted

whether the baby had been awake asleep crying playing on its own been fed been changed bathed been carried around Andor been played with by either her or others a further subset of these mothers were observed directly by the P who would code the interactions between the mother and the baby using the following criteria number one the baby's weight is supported by mother and their fronts are touching number two fronts are touching like in the first category and also the

mother's arms supporting the baby's back and head number three on the lap meaning the baby's weight is supported but there's no front to- front contact the baby might be facing a mother or have their back toward the mother number four they're in contact so baby is standing or sitting on its own but its body is touching its mothers number five the infant is within Arms Reach which is defined as 1.5 M but they aren't touching each other number six they're

in the same room but outside of Arms Reach and number seven they aren't in the same room and they're out of visual contact these categories are considered to be mutually exclusive so mom and baby pair can only do one of them at once the researchers noted that whenever the pair changed from one category to another and the percentage of time was spent in each of the six categories was used along with the questionnaire data the main

finding of this study that took place over 20 months was that most mothers found that at a certain age their babies were more tiring difficult and demanding and that at other periods this was not the case difficult periods were accompanied by increased crying and body contact and a decrease in the amount of sleep the ployes called these period periods regressions to validate the questionnaire data deployers used the observational data and

calculated the time that mother and baby spent in

physical contact and plotted this against the baby's age in weeks the observational data was pretty well correlated with regressive periods that the mothers reported in the questionnaires which isn't massively surprising since they're essentially getting at the same information from the same research subjects in two different ways then they tried to link the regression periods with information that was already known about developmental shifts that babies made make in their first 20 months the floes didn't do any

statistical analysis with the data from the questionnaires they simply looked for a high percentage of participants reporting similar data which means their data are more likely to find a result where there really isn't one they did do some statistical analysis for the subset of mothers they observe directly looking at the relationship between the time the baby spent in body contact with the mother and whether it fell inside or outside of a regression period that the mother identified in the questionnaire

the generally accept P value is 05 which means if you get a P value of 05 or less in your analysis then your evidence is strong enough to reject your null hypothesis that there's no link between body contact between baby and mother and mother's report of fussiness then we say your results are statistically significant the ployes never explicitly State their an all hypothesis but we have to assume is that there was no relationship between the observed data

and the data from the questionnaire the probability of the distribution of frequency under the null hypothesis yielded A P value of 03 which does not reach significance because that number is greater than 05 once they combined the observations instead of looking at them individually they did get very good significance with a P value of 04 so much less than the P value we're looking for okay so far so good right they got statistically significant results when they did the analysis in a

certain way well let's look at the information again and just see if there might be more here than me the eye so the mothers and they were all mothers in the study were not randomly selected they were recruited by midwives or teachers of toddler play groups and then the mothers wrote a letter to the researchers the researchers interviewed the mothers and quote selected healthy mothers who had no previous medical and psychological problems who looked forward to having the baby intended to

look after it themselves were financially secure and had an extended support system which consisted of family living in the same town and free access to a Child Guidance Clinic end quote and everyone in the Netherlands could access those Child Guidance clinics at the time all of the babies were healthy full-term newborns except one who was born four weeks early but after four weeks in an incubator because of possible prematurity of the lungs but apparently the baby had no postnatal problems quote

there was some economic diversity in their sample but all of the families were Dutch and Caucasian maybe you're already seeing some red flags here cuz I know I am well firstly we got that highly homogeneous group of mothers which the researchers specifically selected because they were homogeneous in the paper they said that

quote we followed a very strict selection procedure to find absolutely problem-free and Healthy Families we wanted to understand normal development before venturing into understanding

pathology end quote the unstated Assumption here is that normal development is the way that white children who don't have any major life stressors develop which is an idea you may recall we've won run into once or twice in the past most notably in the development of the your xye old child books there was some economic diversity in this sample but the effects of that are going to be muted in a country where there's a high degree of social support

even the mothers with lower incomes had regular access to the Child Guidance Clinic people in the US have who have access to that same kind of support that the mothers in this study had would definitely be middle class the mothers in the study were repeatedly asked if they were experiencing major life stressors and none of the mothers reported experiencing any major stresses during the entire 20 months of the research which seems kind of wild here in the US where half of adults worry

that a major health event could lead to a bankruptcy which would likely result in losing your home and food insecurity as well moving on to the mental health implications of that highly homogeneous group of mothers we have to remember that pathology means the study of disease so the ployes see any of the stressors that are associated with poverty and a lack of social support and major life changes as likely to cause disease and that good middleclass white

families won't experience those stressors so if we understand how those middleclass white families operate first then we can get everyone else to act more like them and then we won't have any more social problems because children who are raised like middle- class white children are raised don't cause problems and certainly having a mother with any sort of previous medical or psychological problem and who might have been feeling ambivalent about having a baby and who lives in a country

where there's no legally required paid medical leave so she might not be able to stay home with the baby even if she wants to who doesn't have a husband with a stable job and a family nearby to help is pathological the second major issue is that while the authors stated that the mothers didn't know the study's purpose meaning they were blind to its purpose there is no mention of anyone other than the authors doing any of the work in

this study which means the study authors were not blinded and that means the people who were doing the coding knew what they were looking for and were more likely to make observations that fit with their hypothesis that regressive Behavior appears in certain periods because the researchers weren't blind to what data they were trying to collect we can imagine a mother answering the door with a smile and the researcher thinking looks like we're not in a regression

week and codes their observations accordingly maybe another morning the mother opens the door with an eye roll a sigh and clothing cupb and vomit and the researcher thinks oh it looks like a regression week to me and then codes their observations accordingly the researchers certainly knew the exact age of the baby they were

visiting so they may well have had a hypothesis about whether they were visiting during a regression week even before they got to

the door which could have biased their data collection the visits weren't recorded using video or even audio only so we have no way to have a second researcher corroborate the coding thirdly the primary data source was self reported by mothers which means the mothers were the ones filling out these logs every half hour once a week I don't know if you can cast your mind back to being the parent of a young baby or maybe you don't need to cast your

mind back at all and you're in it right now and either remember or imagine what it would be like to mark down every half hour whether your baby had spent time on your lap in contact with you within 1.5 MERS of you in his play pen in a chair in a push chair in another room as well as whether baby had been awake asleep crying playing on its own been fed been changed been bathed been carried about

and been played with either by you or others is there any chance you might forget whether the baby had done each of these things and which half hour period it had done them in is there any chance you might have forgotten to do the log entirely and done it in 5 minutes at the end of the day to the best of your recollection relying generally on your impression of whether your baby seems more or less fussy than usual at the

moment and then back filling the data to fit that I'd say there's a decent chance that this did happen on more than one observation for each child which means our data may not be very reliable a PhD thesis by Dr Ashley Wilmore that will look at in more depth later said that the largest source of data loss in their separate study was written questionnaires not being returned and when the researcher interviewed participants they would often learn

about families moving house changes in daycare arrangements and other stresses in the household that were rarely volunteered in the questionnaire responses and which undoubtedly had an impact on the infant's fussiness the fourth issue is that we don't know much about what kind of conversation the P had with the mothers they observed in person we know the P tried to blending with the background for most of the time and not interact with the mothers and they asked

the mothers if they changed their behavior because The Observers were present and the mother's report did using a little more modesty with nursing and using the bathroom we don't know which of the ploys did these home visits and whether there were differences in the observations by hetu and France for the reasons that mothers might have felt more comfortable with their bodily functions and conversation being observed by another woman issue five is the ployes adopted almost exactly the

same set of criteria for the direct observations as they'd used with chimpanzees in Tanzania with no discussion on the appropriateness of these criteria the most obvious issue is the definition of within Arms Reach since chimpanzees have really long arms the Floy use the same 1.5 MERS to Define within Arms Reach in their chimpanzee studies and with their human study but a chimpanzee's armspan is about one and a half times its

height so a chimpanzee of average height might have a total

armspan of about 8 feet which is four feet from midline to end of fingers by comparison I'm about 5' 8 which is reasonably tall for a human woman and the distance from my midline to fingertips is 3 feet which is a 25% difference so should the difference that's considered within Arms Reach really be the same for both species a similar issue arises in the sixth criteria in the observational study which is within the same room but out of

Arms Reach This criteria is a bit different from the categories that used with the chimps which were within 5 m within 15 M and visible but over 15 meters away since chimps move over a larger area than human mother baby pairs do in the observational data the researchers coded time spent in the play pen or outside the play pen and we think about both that and the amount of time mothers spend carrying their child we start to realize how many cultural

assumptions there are in this data collection we don't have any inform on what parenting practices these parents followed maybe they were following attachment parenting which by the way is different from attachment Theory we covered that in episode 138 on most of what you know about attachment is probably wrong if they were doing attachment parenting then they were probably carrying their babies a lot more than average potentially most of the babies waking and even sleeping hours and perhaps the babies fussed less

because of it because there's no need to fuss when you're seeking proximity to a caregiver and you're already touching them and L you get excited about attachment parenting and think that it's going to be the mythical parenting method that saves you from all crying it's pretty common for former attachment parents to find my work when they get burned out from carrying their baby all the time because carrying baby all the time is feasible when we live in a

culture where we have a whole bunch of other adults around who can help carry the baby it can be a recipe for Burnout when we're trying to do all that by ourselves in our own house with no other support and potentially with one or multiple other children's needs to consider or maybe these parents were following the resources for infant Educators approach known as Rye where we put babies on a mat and allow them to kind of entertain themselves for a good chunk

of the day without needing as much interaction from us our family never had a play pen and if they are used by parents practicing Rye it's probably to help separate an older child from a younger child rather than as a way to contain a baby I'm not saying that either of these methods is necessarily better for all mothers or all babies but the parents do have different ideas about how to raise their children and to the extent that we ignore this the data

about how much time they spend in proximity to each other has an awful lot of cultural issues that affect it that the researchers aren't considering issue six is is that this study we're discussing was published in 1992 which was the same year as the Dutch edition of the Wonder weeks book which was published under a title in Dutch that translates to oops I'm growing the first English translation wasn't published until 2003 so the ployes data on

human subjects from one

study hadn't even gone through full peer review by the time their instructional manual for parents based on their data was published which seems a little bit forward to me it's not like their work was confirming Decades of research that came before it these were pretty new ideas at the time the ployes state in their paper we've been looking at that quote of course it goes without saying that the phenomenon of regression periods should be firmly established in

follow-up studies one of the first things to be done in our opinion is to measure directly or more precisely the various aspects of the regression periods as reported by the mothers for instance the increases in crying can be measured by using a voice activated tape recorder and calculating the number of minutes crying per day or the decreases in sleep can be kept track of by keeping a sleep log and calculating the number of Awakenings per night the increases in

mother infant contact can be directly observed and recorded with an event recorder as we did but the observation should be carried out at least weekly in order not to miss any period now that we have a lead from the maternal reports this has become possible end quote and this leads us right into issue number seven which is the number of participants and studies this work is based upon I'm sure you might have imagined the Wonder weeks Empire with

its multiple book editions and its ubiquitous app and you might have thought this must be based on lots of studies of thousands of babies right how else could they possibly know that these 10 predictable leaps work for so many babies since the app is available in 16 countries and the book has been translated into 20 languages well okay maybe not thousands of babies that sounds like a lot but it must be hundreds of babies right hopefully many hundreds well no it isn't

actually hundreds either it isn't even 100 this initial study which was the only study of the phenomenon of regression periods in human infants at the time the first book was published in Dutch looked at 50 mother infant pairs 15 and then the researchers did the inhome observations which were so important to understanding the regression periods with two of the pairs for initial study 15 is not a terrible number it can tell us if

there's something there worth investigating in Greater depth 15 does not give us statistically great results okay we've already talked about some of the statistics here and I'm going to go into this kind of at a slightly deeper level we need to understand two statistical Concepts right power and P values we already talked about P values a little bit power is related to a number of things but one is the failure to reject a null hypothesis and we can t

typically consider a power of 80% or higher to mean there's a possibility of either correctly detecting an effect or accepting the null hypothesis a null hypothesis is the opposite from what the research is expect to find right they usually expect to find some interaction between two variables so the null hypothesis is that there's no interaction between the two variables they're considering and all the ploy statistical analysis tells us is that mothers who report their babies are

fussy at the moment tend to hold their babies for longer in that period that's it so coming back to our statistical significance issue I think we can assume the null hypothesis is there's no link between baby's body contact with mother and mother's report of fussiness which would mean the mother sees their babies are fussy and are deliberately or non-deliberately spending less time holding the babies in those periods so this P value right stands for probability

value it's the number with describing the likelihood of finding the data that you found in your study which you think tells you something important when there's actually no real effect so actually the null hypothesis is true in other words it's telling you how likely it is your results happen by chance so recall that the generally accepted P value is 0.05 if your P value is less than that we say your results are statistically significant and so power

and P values interact with sample sizes which is why this is important here and the main way to make sure you get enough power and a statistically significant result is to use an equation to calculate what sample size you should use when you test more people there's a greater chance that the result you're finding is actually because there's an effect to detect not because all the people you happen to test all by chance have something in common so if we want

an 80% power level which is also widely accepted in the psychology community and a P value of 0.05 this equation tells us we need a sample of 126 which is over eight times as many mother infant pairs as the PLO actually studied with a sample of 15 that they used if they have a power level of 80% their P value is 0.15 which no serious researcher would ever say is significant or if we hold that P value of 0.05 we're

looking at a power level of around 18% not the 80% we wanted to be reasonably sure we're detecting an effect that's there or knowing that should accept the null hypothesis so we should call this a pilot study which is a study researchers do to find out if there's more worth investigating but that they would never describe as offering definitive results and we hope that the Plooyes or other researchers did the follow-up studies using the voice activated tape recorders

or the Sleep logs or weekly observations right well no now we turn our attention to the topic of replication which is the idea that if the results on a study are real that other researchers using the same methods will be able to find them as well in 2003 Dr FL Fran Ploy co-edited a book called regression periods in human infancy which contain the results of three more studies on regression the first was done by Dr Marta Seder and Dr Carlos Rostran at the

University of Hona in Spain and they had an explicit goal of confirming Dr Plooy's results that he had obtained in the Netherlands once again these researchers selected mothers and babies of quote middle socioeconomic and cultural class us end quote with sufficient social support and qu without any relational problems of any kind end qu we aren't told whether the mothers knew that what the researchers were looking for or whether the mothers were blinded to the research even if the researchers

themselves weren't Seder and Rustan found regression periods with a mean length of two weeks and a range of 1

to four weeks the distribution of the regression periods was much more diffuse than the Flo's original study the children were not always distressed to the same level within a regression period and mothers were not always annoyed by the regression to the same degree overall the picture is of data that is pretty fuzzy there's something there but it's much more difficult to

see what it is in a separate paper Dr sedy Dr Ploy and another colleague of Dr PLO looked at the regression periods they found so I compared these with the periods in the Wonder weeks book both of them found regression periods at around weeks 4 to 5 and 8 to 9 sedy found one at 12 to 14 weeks and then 16 to 20 weeks while wonder week says there's one exactly 12 weeks and then a smooth period and then another regression at 15

to 19 weeks there's more agreement on a regression at what wonder week says is 23 to 26 weeks and sedy says is 24 to 27 weeks wonder week says there's a regression from 29 to 30 weeks which is a clear calm period for sedy and then they agree again a bit more with wonder week saying that there are regressions at 34 to 37 weeks 42 to 46 weeks and sedy saying 32 to 38 and 42 to 48 which

are both wider Windows than wonder week says sidon's last regression is weeks 48 to 53 which only slightly overlaps with the Wonder week's regression of 51 to 54 weeks so when we read in the studies's abstract that quote a temporal relation between the regression periods found in earlier meaning the employee study and the transition periods reported here end quote is sort of true there is some kind of relationship but there was no statistical analysis to understand the

extent to which these two studies are describing the same regression periods or not the authors note that quote some scientists could prefer the use of standardized tests or scales of development in order to observe in a more systematic and precise way the process of change end quote rather than simply asking mothers if their children have learned anything new this week and yes we might indeed prefer that approach but we are not going to find it in this

study oh and their sample size was 18 mother infant pairs so let's keep track shall we of the number of children that the entirety of the Wonder week's method is based on so far we have the original 15 and now this new 18 for a subtotal of 33 the next chapter that we look at in the regression periods in human infancy book is a very interesting one as it was authored by Dr France Ploy it references

a study by doctors D and Vanier in the Netherlands and it seems as though the three of them had actually worked on the study together but there was some kind of squabble over the results Dr pl's chapter says that D and Van refused to allow him to publish the data so it directs readers over to D and vanir's study to see the data before then describing PL pl's interpretation of it so let's go to the data first the three

researchers had observed four infant mother pairs now we're up to a total of 37 pairs with weekly questionnaires and interviews weekly observations of the pairs in their homes in which the researchers had a timer going off in an earpiece every minute and they recorded at that instant what the mother and baby were

doing but they didn't produce video recordings so there was no way to double check their coding they measured sleeping Behavior automatically using equipment placed next to the bed

although they didn't say what that equipment was or how it measured sleeping Behavior the mothers who participated were very much not blinded to the study's purpose in fact the paper says the PLO book which had been published in 1992 had been very successful with lots of newspaper and TV coverage so because it was impossible to avoid the mothers hearing about the book or receiving it as a present the researchers gave a copy of the book to

each of the mothers to keep the study group as homogeneous as possible strong regression weeks were defined as those in which as much as 80 to 100% of the mothers had reported that their infants showed regressive Behavior although it is hard to imagine how there could be 80% of four mothers since three of them would be 75% and four of them would be 100% in the final paper D and vanett said that their study quote failed to

replicate the pl's original findings both for data obtained through homes observations and maternal reports they said that quote no conclusive evidence was found that is evidence above mere chance level for the model of 10 regressions during infancy end quote described by the PLO they bring up a new issue as well they found that some behaviors that looked like regression were actually due to teething and had to be recoded as not regressions okay that makes sense but it brings up another

issue what if a baby is teething on the weekly survey day and then the tooth breaks out after survey day but the mother forgets to tell the researchers then we have a fussy day coded as a regression period when actually it was nothing of the sort in addition they cite research comparing daily maternal reports with observational data on the frequency and duration of breastfeeding and found virtually no agreement between the two types of data given that the

mothers in D and Van study were being asked to recall a much greater constellation of behaviors than whether or not your breastfeeding on a weekly basis not a daily basis they say that quote the reliability of their reports cannot be directly assumed they go on to say that quote this being said it still does not explain why reliably or unreliably the mothers of the ploy study reported regression behaviors in the same Weeks end quote maybe we can

hypothesize this is an artifact of their tiny sample size which had such weak power that the ployes accepted the test hypothesis when they should have accepted the null hypothesis that there is no relationship between infant contact with the mother and mother reports of fussiness a New York Times article reported on some of the controversy around the publication of the data in this specific study so after the study was published in a peer-review journal Dr Ploy publicly denigrated the findings

due to the two babies in the study who were often left in playpens apparently he also violated privacy ethics by saying publicly that one of the mothers was under psychiatric care and that it could have influenced her infants Behavior the University of Gran declined to renew his contract after the incident although Dr Floy insisted he

left by choice and that he did not interfere with the publication of Dr D's work which had been alleged so now that we kind of have the

background on the study they started together and then separated on right we've looked at the data on that let's come back to Dr Pl's chapter in the regression periods in human infancy book which is basically a rebuttal of deir and vanir's study so Ploy identifies a number of reasons why D and vanir may have failed to identify the same regression periods that he did he restates the quote very strict selection procedure that was used in the original

study because because this was an attempted replication the same selection criteria should have been used but apparently wasn't in addition two of the mothers followed a very strict sleeping contact and feeding schedule of the type advocated in the 1920s and 30s when mothers were explicitly told to ignore their baby's crying the mother of the baby cone named infant F said she let her baby cry quote in order not to spoil it if the baby woke up and started

crying the mother left it crying in bed if it was not yet the schema time to feed if the infant cried it was less likely to be held at four weeks during the first regression period the crying graph shows a peak and then the body contact decreases dramatically from 85% to 33% infant f starts smiling much earlier than the other infants and very quickly began smiling a lot more than crying because its mother would reward smiling

with attention infant Jay and her mother was separated for 10 days at Birth and the mother did not object to this saying that she quote was not up to it yet anyway and both the mothers of infants F and J said in their entry questionnaires they were planning to use these strict schedules so it's sort of a mystery why the three researchers working together at that point would accept these mothers into the study the mother of infant e

started child minding two other children in her home 34 weeks after the birth and remember in the original study the mothers were supposed to be financially secure enough that they could plan to stay home with the baby and look forward to it without needing or wanting to work themselves because their husband's salary was sufficient of course we're assuming they're in a CIS hat relationship and they could never be single mothers because how could you possibly work and be so available to the

baby that they can be in contact with you whenever they want if you're working what we see here is a picture of a mother whose job it is to be available to the baby at all times I'm not arguing that we should use the wake your child up when it's time to feed it approach far from it but I also think that if seeing the regression per is happen is so reliant on subsuming all of the

mother's needs so baby can be in contact exactly when baby wants to be in contact then something isn't right here another big thing that comes up in this chapter for the first time is the impact of Mother's depression on parent child interaction patterns other researchers have found two patterns of interaction between depressed mothers and their babies so-called intrusive mothers engaged in rough handling spoke in an angry tone of voice poked at their babies and actively interfered with

their baby's activities withdrawn mothers were disengaged unresponsive and emotionally flat infants of intrusive mothers spent most of their time looking away from the mother and didn't look at objects either and they didn't cry very much infants of withdrawn mothers are more likely to protest and be distressed still more researchers have found that depression lasting longer than 6 months has this kind of effect and that maternal postnatal depression can affect the length and timing of regression periods

one of the mothers in DTH and Banger study was depressed which means that three of the four mothers in the study should not have been selected under replication criteria and all of this explains why Dua and Banger's study failed to replicate the P's original study and it makes sense these authors weren't the only ones to find that the significant findings completely disappear when the mother is depressed the Wonder week's book does mention depression in that it exists and that

you should quote look for the help you need and don't be embarrassed to ask for it as if everyone could actually afford to go to therapy when it isn't usually covered by Insurance there's a comment slid in there that quote today's men are just as big a part of parenting as women and go through it all too end quote when sure men listening to this podcast probably are more involved than the average man but they're not going

through it in exactly the same way that birthing parents go through it and the biggest Point here is that the book never mentions that the data on when regression weeks show up doesn't fit the pattern if the mother is depressed Dr Wilmore found a delay of the regression week by about a week in infants whose mothers were depressed but argues that it quote seems improbable that this would have a detectable impact on human development end quote but PLO goes on to draw five main

conclusions from Dev and Banger's data firstly the age-length regression periods are reflected in direct observations of body contact quote under normal circumstances thereby the phenomenon is once again validated by direct observations end quote so the model Works under normal white middleclass circumstances secondly under special parental conditions like rigid schedule care or depression and phobias direct observation methods are not chaotic and do reflect age-length regression periods but you have to look

for the right signals the researchers observing infant F realized the baby would smile when he was distressed because crying was so ineffective at getting his mother's attention so what if this was the case with some other parents too what if some of the parents in the original study were using a slightly less strict version of infant F's mom's parenting methods and sometimes the child Smiles instead of crying and in 13 or the 15 cases where the mother's filled out questionnaires

but were never observed directly the researchers probably would not have had any idea and also if you're depressed and have had a hard time responding to your baby and your baby smiles at you instead of crying it's possible that this indicates a regression week and what if there are other issues that affect relationships like depression and what if there are other signals than crying and smiling that we know nothing about thirdly quote it has proven important to filter out large peaks in

body contact that can be explained by obvious external circumstances such as chaos travel and training crawling or bipedal walking end quote some parents train their babies to crawl by physically moving the baby's limbs so of course mother and child are going to be in physical contact if that's happening and also if they're training the child to walk by holding the child's hands it's the chaos that most interest me in this statement because chaos is a word that can

describe all of the things that the ployes don't want to see in their study participant chaos could mean the uncertainty that comes with not being white and middle class and financially stable and having lots of family support and being in perfect mental and physical health all of these could lead to the child seeking increased contact with the mom or maybe even with the dad if he was the only person available but these things are called life they happen to

all of us not all at the same time and to some of us more than others but what good is a model that can only be applied under so apparently perfect circumstances the fourth of pl's conclusions is that the context parenting regime and attitude and the age of the child have to be taken into account in the analysis well obviously yes on the age obviously equally obviously yes on the context parenting regime and attitude but this was never

considered in the Floyd's original study finally quote data of individual mother infant pairs have to be analyzed separately and cannot be lumped end quote this is interesting and sort of strange because if the regression periods are so Universal that they are applicable to all children why do we have to analyze the data of individual pairs separately plus you might remember from our description of of the analysis done in the pl's very first study that they only got statistically significant

results once they combined all of the mother's results together PLO concludes that quote the discussion now needs to move on from the existence of the phenomenon of ag- Link regression periods to looking at how an infant adapts to special parental conditions end quote but I think we're pretty far from there at this point we thought we had 37 mother infant pairs contributing data that corroborates the fact that regression periods exist but actually we now have 34 pairs that do

this and four that seem to show the opposite there are two more studies that I want to look at fairly closely because Dr Ploy also cites these as examples of replications of the pl's original study meaning that they tried to use all the same criteria and they found results that corroborate the findings of the original study the first was conducted by doctors Wilmore and richer in the UK and has the not incredibly promising title of detecting infant regression

periods weak signals in a noisy environment this study reported data from 30 mothers involved in a larger study that turned out once I'd done some digging to be Dr wilmore's PhD thesis so we're now up to 64 children across all of our studies supporting the hypothesis Dr wolmer's thesis looked at the difference in regression periods among depressed and non-depressed mothers but in this book chapter they only report data on the non-depressed mothers without explaining any more

about the larger study or the ways that Depression was shown to impact the results so in this chapter we see the actual questionnaire that the researchers use in these studies for the first time where they first ask if the baby cried or fussed more easily or had more mood swings and then to continue with the rest of the questionnaire if not it's not a regression week the second question asks about whether the child wanted more physical closeness or was

more demanding of Mother's attention again continue if these are present it's not a regression week if they aren't finally if at least two of the following are present it's a regression week the child had sleeping problems or nightmares had eating problems resisted being changed was shy with strangers was less vocal was less active sucked their thumb more often behaved more babyish was jealous wanting mother all to themselves was very naughty was very friendly or through more temper tantrums

the questionnaire doesn't specify what eating problems mean so who knows what the mothers interpreted that meaning the Floy say at various places in the Wonder week's book that quote both breastfed and bottle-fed babies can temporarily have smaller appetites end quote when they approach leap and that quote during a fussy PA phase breastfeeding babies often want to nurse more it may seem as though they're nursing all day long end quote so both feeding more and feeding less are potential signs of a leap in

the book although how they know that from a questionnaire that asks for a yes or no response to a question on whether baby has eating problems remains a mystery okay so let's look at that list of behaviors in the questionnaire because there are some interesting items on it I imagine sleeping problems is somewhat self-explanatory for most parents although I'm not sure how we can tell if a child who's less than 2 years old has Nightmares on resisting being

changed being very naughty and throwing more temper tantrums what I see is a child whose needs we don't understand why are they resisting being changed why are they being naughty we have no idea maybe maybe they have a need for autonomy maybe they don't want to stop playing maybe they don't like being cold when they stripped half naked we have no idea all we're being trained to see is resistance which is apparently indicative of a regression period but

what if it isn't my daughter was shy with strangers every time she met them and she always wants me to all to herself so who knows how that would have been coded plus being very shy with strangers and being very friendly are both indicators of regression periods which seem like they can be in opposition being less vocal is considered a regression item but being fussy is a primary regression item so how could you make it through the first

question about more fussiness and then also say yes to was less vocal we do know that not all of the babies in this particular study were firstborns we don't know about any additional pregnancies or births that happened during the study as you may well know acting babyish can be a response to Sibling Dynamics and it can also happen in response to finding out that another baby is on the way although the researchers say that quote in Signal detection Theory terms these

meaning their results are weak signals within a lot of noise so there is an increased danger of making both false negative and false positive findings they go on to say that their results provide quote strong support for the ployes findings for existence and timing of regression periods out weeks 12 17 and 26 and they call this strong support even though during the Peaks regression periods are only reported by 40 to 75% of participants they didn't start

collecting data until until 10 weeks so as to make sure to have data from children who were overdue so they missed the week four and the week eight leaps they don't say why they stopped at week 26 they noted they had been able to identify regression periods in Children of depressed mothers but that the timing and duration was different and when they combined all the data then all significant findings disappeared this is sort of getting worrying because

between 13 to 17% of mothers in the US do experience depression with an especially High proportion of Latina mothers having it but the Wonder weeks book doesn't ask mothers if they're experiencing depression and if they are that this separate set of patterns applies to you it also begs the question what other patterns are we missing by looking at these highly homogeneous samples in the studies what patterns would we find among children of mothers who work or single parents or

neurodivergent parents parents or NE neurod Divergent children who are obviously way too young to be diagnosed how can we possibly know if this book is relevant to us or not Wilmore and richer introduce yet more reasons why this data is difficult to understand this is the first time I've seen that the timing of regression periods is based on gestational age and not from age of date of birth I was so surprised by this that I had to look

closely at the book to find the single mention that the method that is based on due dates so I ran a survey in the your parenting Mojo Facebook group to see if anyone else had missed this and I found that 70% of the people who responded said they did follow the wonder week system with their baby that was actually a lot more than I expected especially since there were a lot of new apps on the market now to track every aspect of

your baby's development of those 70% of the people who use the Wonder weeks a whopping 18% of parents hadn't realized the correct date to use is the due date rather than the birth date of course in the studies the researchers are the ones making all these calculations but if all you have is the book and you miss the single time this is mentioned you might be forgiven for wondering why on Earth this system doesn't seem to apply to your child but

it turns out we weren't the only ones to miss this in his PhD thesis Dr Wilmore says Vander right and Ploy do not make it absolutely clear that the gestational age of the infant is used to determine the timing of the regression periods however their use of gestational data was later confirmed during the planning phase of this project the issue was not considered all the timings for this project were based on infant age from date of birth this resulted in

discrepancies in the number of weeks that data were collected for example when prospective parents were

referred slightly late I.E during the infant's 12th week and the infant was AI also two weeks overdue the study could only start during the infant's 15th week based on gestational age oops they also say there's a problem inherent in using a timing unit as long as one week which meant the researchers would call the mothers on a weekly basis the weeks were rounded so an infant that was

seven weeks and 3 days old is in week seven while one that is seven weeks and four days old is in week eight and while we're at it why do we consider the week an appropriate resolution to study this kind of issue at all other than the fact that it's convenient for the researchers and it's convenient to communicate to parents the ployes have not presented any evidence whatsoever to show that a week is a duration of time that gives us

an accurate picture of infant's Behavior we could look at 4day Cycles or six day cycles or any other duration we like obviously they have to be cut off somewhere but it seems though if you're looking for weak signals in noisy data it might be a good idea to study children who actually share a due date if you think gestational age is the primary issue your data is organized around but it turns turns out gestational age is not very accurate

either these dates are usually calculated using Nala's rule which says we should determine the first day of the last menstrual period subtract three months add one year and seven days that produces a due date that's approximately 280 days from the start of the last menstrual period oh and that rule was developed around the year 1850 and it has not been updated since one study found that the last menstrual period BAS gestational age estimates didn't agree with expert

obstetric estimates in 39% of over 600,000 life birth records in Ohio between 2006 and 2009 it also assumes a 28-day menstrual cycle and ovulation on day 14 when 1% of people who menstrate in one study of over 600,000 Cycles have cycles of 15 to 20 days 7% have cycle lengths between 36 and 50 days another study found that 46% of people in a smaller study of 786 Cycles had

differences in their cycle length of seven days or more and 20% had differences of 14 days or more and the differences are not randomly distributed one study found the gestational length for white firsttime mothers is seven days shorter than would be expected using nagler's rule there's also no one perfect method of determining the ovulation date which varies from one person to the next so this whole idea is based on understanding the exact gestational age of your baby which is

not an exact science itself at all Dr Wilmer study introduced even more suggestions for reasons why children might exhibit regressive behavior that aren't actually regressions things like changes in the family routine the arrival of a new caretaker as well as separation from the mother family stress we've been discussing but the survey doesn't ask about any of these things it doesn't say is your child showing any signs of regressive behavior that aren't explained By changes in the family

routine the arrival of a new caretaker separation from the mother family stress or any of the other issues we've been talking about in this episode so what if those things are happening and we attribute it to a regression but it isn't really the researchers say there were hints of these ideas in the data but it was not possible to test them

systematically and in any event it is unlikely that all sources of noise can ever be eliminated which brings up the

question that underpins this episode if we can't eliminate the noise what's the point of understanding the regressions they might have developmental interests for researchers but if they don't actually tell parents much that's useful what is the point and I thought of another issue related to all these family stressors what if the baby was essentially the same from one week to the next but the mother was feeling more tired or stressed out or even sick and the very same behavior

that seemed fine last week suddenly seems clingy and overwhelming and mother reports regression like behavior when it isn't even there some of the mothers in this study return to work toward the end of the study period which the researchers say did introduce more noise into the data fail to find regression periods must be carefully scrutinized to ensure they have not simply failed to see through the noise in their data to find the phenomenon for the phenomenon's non-existence end quote the

final conclusion they draw about their data is that researchers should quote be careful about heterogeneity in the sample of participants especially the existence of maternal Depression end quote but the Wonder week's book presents this information as if it's relevant to everybody from every background in every country with no mention of physical or mental challenges or any other variables we've discussed the depressed mothers in these studies had be babies with clear fussy periods at Weeks 15 and 17 not the Long

Peak between 14 and 18 that Dr Wilmore was expecting to find he found a Peak at week 25 instead of the expected 26 but each of these findings from a different data set data that was corrected for gestational age and removing children with illnesses and data without these Corrections no single set of data from depressed mothers match the pl's data and yet the PLO never mentioned in the book that depressed mothers can expect very different regression period

timing the final study that I want to look at from this book was a study in Sweden of 17 firstborn infants so now we have a grand total of 82 children across these four studies the children were divided into two groups with eight mothers responding to the usual weekly questionnaire and interview guide translated into Swedish nine diets when the observation Group which was further divided into two cohorts one was observed from two weeks to seven or nine

months and the second from 7 or 9 months to 15 months no explanation given as to why have all this subdivision happened or what if any impact it might have had on the results During the period when the observation group children were not being observed they were followed by questionnaires that the mothers answered the observations consisted of three-hour home visits once a week when the researcher recorded the amount of time mother and infant had body contact and

the amount of time baby cried fretting and fussing were recorded once every 60 seconds due to confounding factors like illness the number of infants included in the analysis varies from 13 to 16 per week which we have to imagine happened in the other studies as well but no other authors explicitly State this or told us how they

accounted for it in their analysis the relationship between the number of identified regression periods and the number of expected periods was

above chance level but only 55% of the regression periods were observed within the expected weeks over 60% of the children were identified as regressive during weeks 14 to 19 46 weeks periods not directly supported by this data were 4 to 5 7 to 9 11 to 12 22 to 26 49 to 52 and the 61 to 64 week periods so 2/3 of the regression periods in the Wonder weeks

In his book the researchers hypothesized some reasons for this finding including less homogeneous development after age nine months cultural differences between the Netherlands and Sweden and individual variability between infants due to factors not controlled for like temperament and noted that all of these factors need to be addressed in future studies and that it's also possible there were some translation issues Dr Wilmore realized in the discussion section of his PhD thesis that a question on the parent's questionnaire in Dutch asks whether

the infant is quote tiresome which in Dutch means that the child is feeling out of sorts but in Wilmer's study the English translation meant the mother was having a hard time that week because of the child's behavior relatedly Dr Wilmer wonders whether mothers perceive infants are more challenging during regression periods which occur on approximately a 4-week cycle due to factors unrelated to infant development such as menstrual cycles the mis translation of tiresome certainly could have contributed to this

In Dr Wilmer's thesis he says that he did not generate evidence to support regression at Weeks 12 or 26 but this cannot be interpreted as failing to provide support for their existence because of the translation issue but it also can't be used as support for their existence either which is exactly what Dr PLO goes on to do as we will see very soon further Dr Wilmer said that when he asked things like quote have you been

able to make any time for yourself this week and have you picked your baby up when he or she has wanted you to more often this week mothers often asked how other participants had responded to these questions some mothers seemed reluctant to give responses that could be interpreted as them struggling to look after their baby and issue which would be totally missed in the yes or no responses to written questionnaires so the upshot of all of

this is that we are looking at studies of a grand total of 82 children three of which are described as replications of the original study but which come nowhere close to finding the same outcome and in his book chapter summarizing the findings of these so-called replications Dr PLO states that quote the evidence presented herein provides good support for the claim that age related regression periods exist and for the conclusion that their existence should be taken into account whenever

developmental processes in infancy are discussed admittedly so many regression periods were not expected meaning in his original study and the finding came as a surprise however the data were firm and they have been replicated and quote he does note some of the confounding stressors that can generate regression like behaviors including parental divorce going to daycare for the first time holidays switching with between caretakers or

when the baby is ill he also wonders whether the differences in

lifestyle and culture of infant care across countries might affect the results and describes this as a topic for further study yet no further Studies have ever been conducted so the pl published their only study on the timing of regression periods in 1992 and as far as I can tell they didn't publish any other papers after this point that establishes the timing of the regression periods more firmly by 2003 they're saying we should stop debating whether the periods exist

or not with only 82 infants worth of evidence much of which is not entirely aligned with the pl's ideas to back up that claim yet in the Wonder weeks book The PLO confidently State all babies go through a leap in their mental development around the same age calculated from the due date when the evidence we've seen does not really support this assertion so this is where we leave it for this episode so the upshot of all of this is

what's presented as settled science in the Wonder week's book is really anything but it seems likely that babies cry in some periods more than others over their first couple of years but when those periods are is very much contested or at least it was in the early 1990s nobody else has done research on this topic since then although other researchers who commented for the New York Times article were divided on whether they had seen anecdotal evidence for leaps or whether

they thought it was a load of rubbish in our next episode on this topic we'll take a closer look at at the evidence for what the ployes say is happening in the developmental leaps that are supposed to follow the fussy periods as well as the implications of the advice that they offer to parents for what they can do to support those developmental leaps if you would like to look at any of the 46 references I looked at for

this episode 37 or 80% of which are peer-reviewed which is a much higher proportion than you will find of the references in the Wonder weeks book you can find them at your parenting [mojo.com](http://mojo.com) wonderweeks part one