

APA Reference

Kellermann, N. (2015). Hereditary Memory: Can a Child Remember What the Parent Has Forgotten?. *Psych Central*. Retrieved on November 18, 2015, from

<http://pro.psychcentral.com/hereditary-memory-can-a-child-remember-what-the-parent-has-forgotten/0010428.html>

Hereditary Memory: Can a child remember what the parent has forgotten?

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~ I carry someone else's memory.

Ilya Ehrenburg, *Novyi mir* cycle, January 1945

Offspring of trauma survivors often feel that they carry the memory of their parents. They were not alive at the time. They were not supposed to know. Often, they were not even told. But they know. They know it in their bodies, in every cell of their body. It's almost as if they were born with that knowledge.

While walking home on a rainy day, they may think: 'It's not so bad really. Getting wet is not the end of the world.' Then there is an afterthought: 'After all, it's not a death march, is it? It's not like during the war'.

Or, is it?

They are offspring of Holocaust survivors, now middle aged or older. But it's not only happening to them. Offspring of other war-related trauma also have such memories of their parents' stressful life events.

When they have these associations, it's as if they remember how it was *then and there*, when people suffered and died, or were butchered all over the place. And even if they were not alive at the time, they can feel the terror, the panic and the loss.

Sometimes they also have nightmares about things they never experienced.

Such thoughts are so familiar for many. It's as if they were carrying the burden of their parents' war experiences even though it's been over seventy years since it all happened.

Hereditary memory does not refer to the actual recollection of the war experiences of the parents with specific audio-visual details. More accurately, the child remembers the implicit feelings aroused from the experiences of their parents and particularly the learned fears absorbed during the war. They remember the terror of their parents which was imprinted in them. Consequently, offspring of survivors inherited the physical responses to hunger, cold and emotional pain.

Such 'non-declarative' memories are similar to the paradoxical recollections of the trauma survivors themselves. Since unbearable trauma is often managed by dissociation and fragmentation, the survivors often forgot many details of the actual events that occurred. At the same time, however, intrusive images and anxiety provoking 'flashbacks' of the more disturbing details remained. Even if, or perhaps because, the trauma was

denied, repressed or 'forgotten' in the first generation, it sooner or later will find expression in the second.

Why are they still remembering these things? Can it be because the parents tried to forget and so they now appear in the offspring? Is it possible that such memories really can be passed on to the offspring and become unconscious instinctual fears? I believe it is. But how? How can a repressed memory from a traumatic event of a parent be transmitted to a child?

Transgenerational transmission of trauma occurs when offspring absorb the trauma of their parents. Resilient children of Holocaust survivors continue the legacy of survival, while the more vulnerable children carry the burden of war trauma. For the first group, survival in itself becomes a source of creative inspiration that motivates them to make the world a better place. For the susceptible individuals, the atrocities of war may fill their inner lives with terrible anxiety-provoking associations. At the end of the day, however, they all seem to struggle with contradictory forces of resilience and vulnerability, trying to find the best balance between fight-flight and relaxation. In doing so, they seem to have inherited a kind of implicit survivor memory of their parents that helped them to hold on to life even at its most challenging moments.

Transgenerational transmission of trauma - TTT - has been described in numerous studies over the years. From these reports, it appears that people 'remember' more than they realize consciously. It becomes a biological cell memory of what the parents experienced. Standing in line evokes reminiscences of the roll call in camp (appell); seeing a tattoo makes them think of the numbers inscribed on camp prisoners; a cattle train; a German word, etc. Such stimuli trigger a specific Holocaust imagery with its accompanying painful emotions. The concealed cell-membrane deposits contain frightening memories assimilated over a long time as a readiness to respond in certain ways to danger. Like past-life regression, it's as if the child was born with some knowledge that it did not learn by themselves.

Different explanations were suggested for TTT. Some parents talked too much or too little about their experiences. Others became overprotective, or they became too distant or too attached. Children who had grown up with traumatized parents had learned also to become fearful. But these largely psychoanalytic theories could not fully explain the severity and persistence of mental problems in this population. There seemed to be more to TTT than only unconscious 'transposition' or 'projective identification'.

A new hypothesis has recently received more attention: Perhaps the parents had been harmed by the war in a neurobiological manner and if so, perhaps their children had inherited this same wound?

That we are born with the genes of our parents is well known. That we are also born with the phenotype (or the way that these genes are expressed), however, is a more controversial issue. This idea is based on a kind of biological heredity mechanism called 'epigenetics'. It suggests that children of trauma survivors can also inherit the *acquired characteristics* from their parents. These may be somehow handed down through chemical markings upon their chromosomes. For children of Holocaust survivors, such marks may be compared to the numbers tattooed on their parents' forearms. They make it possible for the child to remember what the parent has forgotten.

Whether we call such biological memories ancestral or genetic, there seems to be a real biochemical origin to the stress responses of descendants. In fact, numerous studies found that mammals can inherit certain stressful emotional experiences of their parents.

Transgenerational epigenetic inheritance controls the nervous and endocrine systems in ways that were previously unknown. For example, the subtle disapproving gut-feeling when leaving food on the plate because ‘then and there, they died from starvation’ would be explained with electrochemical signals from the brain instructing the body (through stress hormones) to “*eat up everything on your plate!*”. Such hereditary body signals may cause the offspring to lose their emotional balance and sometimes even to develop (secondary) post-traumatic stress disorder when exposed to a new trauma.

Epigenetics makes a lot of sense because it describes how the body continually adapts to the environment. When there is too much stress, various psycho-physiological mechanisms are initiated and the total organism tries to adjust. There has been an explosion of studies on epigenetics during the last decade. Advances in molecular genetics and cognitive neuroscience have just started to uncover the biological mysteries and cellular basis of hereditary memory. Methyl groups tag DNA and histones (the proteins around which DNA is packaged to form chromatin) change the transcription potential of the genes and respond by either switching them on or off. The bottom line is that if there was an epigenetic alteration in the regulation of the cells of the parents as a result of a catastrophic event, this alteration would be passed on to offspring. These children could then be born with a specific modification of the glucocorticoid receptor gene (*FKBP5*), making them *disposed* to traumatic stress disorder, or more vulnerable to stress.

Obviously, all offspring of trauma survivors do not have the same disposition. But vulnerable children of trauma survivors seem to have been born, not only with their parents’ hardware (DNA), but also with their old, and ‘infected’ software (epigenome). Like a virus, such a software bug can lay dormant and do no harm for years, until it is suddenly switched on and give them a panic attack, even in a non-threatening situation. At such moments, the person will not have a clue of what hit them.

Even though the computer was reformatted (or reprogrammed) at conception, some traces of the old program remains. At fertilization, the germ cells were supposed to have been wiped clean of any chemical modifications to DNA. No memories were supposed to slip through the generation barrier. Research from the last decade, however, has found evidence for what clinicians have long observed, but were unable to verify. Some DNA methylation (or mRNA) can escape the ‘reset’ mechanism or ‘reprogramming’ in human germ cells and this may explain how some memories can reappear in offspring.

Future studies will surely provide more data on the genetic vulnerability of specific individuals. The findings of such research may lead to the introduction of a new diagnostic entity -- *transgenerational stress disorder* -- as a separate subtype of PTSD, distinct from secondary PTSD, with immediate relevance for the assessment, prevention, and treatment of children of various kinds of trauma survivors.

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