



Montessori, the White Cross, and Trauma-Informed Practice: Lessons for Contemporary Education

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Abstract: Childhood adversity and trauma are pervasive and have powerful, far-reaching consequences for health and well-being. Recent years have seen increased recognition of the need for trauma-informed practice, which aims to promote understanding, healing, and the prevention of retraumatization. Historical data show that the early Montessori schools were known internationally as healing schools, wherein children affected by adversity or trauma were apparently healed on a considerable scale. This study presents the findings from a documentary analysis of three primary sources, namely, Maria Montessori’s own original accounts, eyewitness accounts, and media reports pertaining to this healing aspect of the early Montessori schools. The findings demonstrate that, first, from the beginning of her career, Montessori worked with children who had experienced significant exposure to adversity or trauma, second, that her Montessori Method was shown to effect healing or recovery in these children, and third, that her long involvement with trauma-affected children directly led to her later attempts to set up an organization to be called the White Cross, which was to incorporate, among other things, a trauma-informed course for teacher–nurses. In this innovative approach to Montessori studies, we argue that Montessori was ahead of her time, that her work is even more relevant today in the context of adversity and trauma research, and that her methods, principles, and approaches may be harnessed and used in ways that promote trauma-informed practice in contemporary education settings.

Children have many kinds of sensitiveness, but they are all alike in their sensitiveness to trauma.
(Montessori, *The Absorbent Mind*, 1967, p. 131)

Maria Montessori (1870–1952) was a woman ahead of her time. In 1896 she was one of the first women in Italy to obtain a double honors degree in medicine and surgery; she was remarkable in that her doctoral thesis

was based on a psychiatric topic even though psychiatry was a relatively new branch of medicine at that time (Kramer, 1976). After receiving her medical degree, Montessori furthered her research in psychiatry such that,

as early as 1897, she was recognized as a knowledgeable clinical psychiatrist (Povell, 2010) and an expert in childhood mental illness (Guttek & Guttek, 2017). As Babini stated, she went on to carve out “a remarkable career: from psychiatrist to educationalist” (Babini, 2000, p. 45). In 1896, she began her career with children who suffered the double burden of being both developmentally challenged and victims of adversity and trauma (in the form of emotional and educational neglect), and she continued for the next 20 years to be involved with children who had suffered significant exposure to adversity and traumatic experiences (e.g., the children of San Lorenzo who grew up in one of the poorest slum districts in Rome; the children of Messina and Reggio Calabria who survived a devastating earthquake that left most of them orphaned and homeless; and the French and Belgian children who were exposed to the horrors of war, which left many severely traumatized; Phillips & Phillips, 2016). All of these children were exposed to what we would now call adverse childhood experiences (ACEs; Felitti et al., 1998).

Adverse childhood experience originally described exposure before the age of 18 to stressors such as abuse, neglect, domestic violence, parental separation, household substance misuse, and family mental health issues (Felitti et al., 1998). In more recent years, however, the importance of other adversities, such as homelessness, poverty, racism, and other inequalities, has been recognized by leading organizations such as the National Scientific Council on the Developing Child (2020) at Harvard University. These types of experience overlap with what is considered *childhood trauma*, which refers to exposure to either single or multiple overwhelmingly stressful experiences that can leave children psychologically and biologically damaged (Burke Harris, 2019; Herman, 2015; Perry et al., 1995; Perry & Winfrey, 2021; Substance Abuse and Mental Health Services Administration [SAMHSA], 2014; van der Kolk, 2014). A vast and compelling body of research demonstrates that traumatic experiences have a detrimental impact on brain development and cognitive, social, and emotional functioning, thereby affecting a child’s ability to learn, form relationships, and function appropriately at school (Cole et al., 2005; Craig, 2016; Perry & Szalavitz, 2017; Treisman, 2017; Wolpow et al., 2016). This effect has led to increasing recognition of the need for schools and other human-service settings to become trauma informed and trauma responsive by implementing *trauma-informed practice* (TIP; Alexander, 2019; Jennings, 2019; Maynard et al., 2019; Overstreet & Chafouleas, 2016; Thomas et

al., 2019). TIP is an approach that aims to understand the impact of trauma on an individual’s life and respond in a manner that offers safety, both physical and emotional, to that individual, as well as prevent retraumatization. It also seeks to empower people to reestablish control over their lives (SAMHSA, 2014). TIP acknowledges the prevalence of trauma, as well as the biological, social, and psychological consequences of trauma on an individual’s affect and behavior (Cole et al., 2005; Wolpow et al., 2016). The key principles of trauma-informed practice are accepted as safety, trustworthiness, choice, collaboration, empowerment, and respect for diversity (Fallot & Harris, 2009).

In this paper we argue that the concept of trauma-informed care in the early childhood years is not necessarily a new one. For example, it is not widely known, by either teachers or the general public, that Montessori had a strong “interest in psychological trauma in children” (Scocchera, 2002/2013, p. 49) and a long involvement with children who were exposed to adversity or trauma. We argue that her involvement with four specific groups of children—first, the “persecuted,” “neglected” and “rejected” children from the Manicomio di Roma (the psychiatric hospital of Rome, usually referred to historically and by Montessori as the asylum”; Montessori, 2008, p. 263); second, the “tearful, frightened children” of San Lorenzo (Montessori, 1936, p. 123); third, the “numbed, silent, absent-minded” children of Messina–Reggio (Montessori, 1936, p. 152); and fourth, the “psychologically or mentally mutilated” French and Belgian children (Montessori, 1917/2013, p. 39)—arguably represented significant efforts on her part to support children suffering from the effects of adversity and trauma (Kramer, 1976; Mayfield, 2006; Montessori, 1917/2013; Moretti, 2021). This involvement with trauma-affected children, combined with her attempts in 1916 and 1917 to train teachers and nurses in “special methods of education” (Montessori, 1917/2013, p. 40) to facilitate healing from psychological trauma (as part of the work of an organization she intended to call the White Cross), further represented significant efforts on her part to support children suffering the ongoing effects of trauma (Kramer, 1976; Mayfield, 2006; Montessori, 1917/2013; Moretti, 2021; Trabalzini, 2013). These vivid and explicit descriptions by Montessori herself, of children damaged by psychological trauma that subsequently led to their inability to learn, were the inspiration for our argument that Montessori’s interest in and long involvement with psychological trauma

culminated in her plan to design and deliver a trauma-informed course to teachers and nurses to enable them to understand the effects of adversity and trauma on children and to give them the skills to help these children to heal and recover. It would appear, therefore, that Montessori's approach to education and care was very much shaped by her interest in childhood trauma, but her contribution in this respect has not yet been fully investigated.

This paper reports the first stage of a larger, three-stage study designed to investigate the extent to which Montessori's practices and principles may be harnessed to develop a new professional-development course designed to help teachers better understand and implement trauma-informed practice in early childhood education. The overarching aim of this three-stage study is to support children affected by trauma by introducing and scientifically testing (in stages 2 and 3 of the study) Montessori-attuned, trauma-informed practice. The specific objectives in this first stage are to explore the historical, documentary evidence to identify and critically describe Montessori's involvement with children who had suffered psychological trauma, her descriptions of the presentation of that trauma, and her approach to healing and recovery.

Method

The specific research question underpinning this study is "What is the historical evidence supporting the claims that Montessori offered a healing environment?" To answer this question, we conducted a qualitative documentary analysis (two authors are Montessori practitioners and researchers; one is an academic with particular expertise in school-based, trauma-informed practice; and one is a senior academic involved in mental health and the well-being of children and families), in line with the approach recommended by Bowen (2009). A total of 12 documents relating to Montessori's work between 1898 and 1917 (i.e., eyewitness accounts, media reports, and Montessori's own accounts) and specifically to the four specific groups of children referred to earlier were procured and scrutinized (see Table 1). These sources yielded a large amount of data, consisting of excerpts, quotations, passages, and entire books that were selected for analysis. Braun and Clarke's analytical model (2006) was used. Specifically, the historical material was examined and categorized into themes, and then

the theoretical concepts (as outlined in the theoretical framework below) shaped the final identified themes.

Theoretical Framework

This study is anchored in the concept of trauma and guidance for a trauma-informed approach adopted by the SAMHSA (2014). Contemporary research and theory in trauma studies demonstrates the impact of exposure to adversity and traumatic events on the mind and the body (Felitti et al., 1998; van der Kolk, 2014). After exposure to chronic adversity or traumatic events, children often become either hyperaroused (i.e., reactive, aggressive, hypervigilant), hypoaroused (i.e., numb, detached, dissociated), or a mixture of both, and these states can become habitual (Perry et al., 1995). These states have a negative effect on the child's ability to learn, develop relationships, and function appropriately in schools (Cole et al., 2005). There is a need, therefore, for teachers to be aware of how exposure to adversity and trauma affects both the behavior and emotional responses of the child, and of how to prevent retraumatization and promote recovery (Craig, 2016).

Results

Three major themes were identified from the analysis: (a) Montessori's long involvement with childhood adversity and trauma, (b) how the Montessori Method facilitated healing from the effects of adversity and trauma, and (c) Montessori's proposal for an intensive, trauma-informed course for teachers and nurses as part of the White Cross organization. We review each theme.

Montessori's Long Involvement With Childhood Adversity and Trauma

The first theme identified from the analysis relates to Montessori's long involvement with childhood adversity and trauma. It was evident that the four groups of children described earlier, whom Montessori encountered during a 19-year period (from 1898 to 1917), had been exposed to significant adversity and trauma before they came under the beneficial influence of Montessori's Method. Each group is described below.

The Children From the Roman Psychiatric Hospitals (1898): A Background of Deprivation and Trauma

In 1897, a year after graduating as a medical doctor, Montessori became a voluntary assistant at

Table 1*Chronological List of Data Sources*

Author and date	Title of document	Type and length of document
M. Montessori (1936)	<i>The Secret of Childhood</i>	Book (239 pages)
M. Montessori (1917)	<i>The White Cross</i>	Pamphlet (5 pages)
M. Cromwell (1916)	<i>The Montessori Method: Adapted to the Little French and Belgian Refugees</i>	Pamphlet (3 pages)
M. Montessori (1915)	<i>Articles from the San Francisco Call and Post</i>	Newspaper articles (82 pages)
C. Bailey (1915)	<i>Montessori Children</i>	Book (117 pages)
J. White (1914)	<i>Montessori Schools as Seen in the Early Summer of 1913</i>	Book (185 pages)
R. Marguiles (1913)	<i>Dr. Montessori and Her Method</i>	Journal article (7 pages)
D. C. Fisher (1912)	<i>A Montessori Mother</i>	Book (240 pages)
M. Montessori (1912)	<i>The Montessori Method</i>	Book (277 pages)
A. George (1912)	<i>Dr. Maria Montessori: The Achievement and Personality of an Italian Woman Whose Discovery Is Revolutionizing Educational Methods</i>	Magazine article (6 pages)
E. Y. Stevens (1912)	<i>The Montessori Method and the American Kindergarten</i>	Magazine article (6 pages)
J. Tozier (1911)	<i>An Educational Wonder-Worker: The Methods of Maria Montessori</i>	Magazine article (17 pages)

the psychiatric clinic affiliated with the University of Rome. Here, she worked alongside the eminent child specialist Clodomiro Bonfigli, who was conducting research on mental health disorders in children (Gutek & Gutek, 2017) and had a particular interest in the social determinants of mental illness (Povell, 2010). As Trabalzini pointed out, “she thus joined the psychiatric clinic’s work group that saw the cooperation of illustrious scientists” (Trabalzini, 2011, p. 17). As part of her work, the young Montessori was required to go into the “asylums” (Montessori, 1964, p. 31) to identify suitable candidates to take back to the clinic for study. It was in this capacity that she first became involved with children who, because they were unable to function at school or in their homes, were placed in these institutions that offered them no opportunities for learning or development.

In a series of newspaper articles published in 1915, Montessori reflected on the deprivation these children had suffered in these institutions and highlighted the facts that the children belonged to the poorest classes,

were “persecuted and neglected even by their parents,” and were excluded from education (Montessori, 2008, p. 263). According to her biographer, the children were “herded together like prisoners in a prison like room” (Standing, 1957, p. 28). Their days alternated between eating, sleeping, and staring into space. Their caretaker told Montessori with disgust how “after their meals, they would throw themselves on the floor to grab for dirty crumbs of bread” (Kramer, 1976, p. 58). Montessori observed that the children had no toys or materials of any kind and that the room was completely bare (Standing, 1957). She immediately recognized that these were not greedy children looking for more bread but were human beings, starved of emotional and intellectual stimulation and who therefore were using the breadcrumbs as playthings or learning materials (Kramer, 1976). In today’s terms, we would say these children were being exposed to severe neglect (Felitti et al., 1998).

In her efforts to understand the cognitive, social, and emotional problems evident in these children,

Montessori's research led her to the work of two almost forgotten French physicians, Jean-Marc-Gaspard Itard (1774–1838) and Édouard Séguin (1812–1880). The work of both doctors was to have a profound impact on Montessori's approach to teaching developmentally challenged children, and later, children in general. Itard had dedicated years of his career to attempts to remediate a child referred to as *the Wild Boy of Aveyron*, a mute, feral child found running wild in the forests of France. Although this boy is usually referred to as a mentally challenged child, there is evidence that he was also a severely traumatized child. It is arguable that Itard's methods, which so intrigued Montessori and had a profound influence on her, had as much relevance to the treatment of traumatized children as they had to the treatment of mentally challenged children. It is significant that the American journalist Josephine Tozier (who had spent months in Rome in 1910 talking with Montessori about her work with children and her sources of inspiration) wrote the first in a series of articles on Montessori's work that were key in launching the Montessori movement in America. Tozier began by telling the story of the Wild Boy of Aveyron and stated in her very first paragraph that this story "formed the starting-point of a process of thought and experiment" in Montessori's mind. Tozier wrote:

In a forest of the Department of Aveyron, France, some hunters, in 1798, caught a wild boy, apparently eleven or twelve years of age. His body was covered with scars, caused by briars, thorns, and the teeth of animals; but one scar on his throat seemed to show that whoever left him in the forest had first tried to murder him. (Tozier, 1911, p. 3)

Itard's writings, which meticulously record his attempts to remediate this undeniably traumatized child (who had suffered unimaginable physical and emotional abuse and neglect), as well as the later work and research carried out by Itard's disciple and successor Séguin, had a huge impact on Montessori. Based on her talks with Montessori, Tozier wrote that the work of these two doctors "fell in with [Montessori's] own line of thought, giving precision and certainty to ideas already germinating in her mind" (Tozier, 1911, p. 4) and led directly to Montessori's work in the Scuola Magistrale Ortofrenica [Orthophrenic School] in Rome (Tozier, 1911, p. 4), of which Montessori was a codirector. It is arguable that through her own

observations and the recorded observations of these two doctors, Montessori was beginning to link the impact of adversity and traumatic experience with cognitive, social, and emotional functioning, or what she called (when referring to the children she worked with in 1897) "moral and mental incapacity" (Montessori, 2008, pp. 263–264). In this respect, she was more than 100 years ahead of contemporary literature on the topic (Cole et al., 2005; Felitti et al., 1998; Perry & Szalavitz, 2017; Treisman, 2017).

The Children of San Lorenzo (1907): A Background of Poverty and Neglect

Several years later, in the early 1900s, Montessori began what was to become her acclaimed work in San Lorenzo in Rome, an extremely impoverished district in which an Italian building society sought to bring social improvements by providing tenement accommodation that would include a day-care facility for "all the little ones between the ages of three and seven" who were unable to attend the public schools (Montessori, 1964, p. 43). Foschi (2008) stated that Montessori, who had become well known "as a pedagogical expert" (p. 243), was invited "to direct the educational activities" of these facilities (p. 244). On Sunday, January 6, 1907, the first Children's House, as the facilities were called, was officially opened in a refurbished tenement in the slums of San Lorenzo. In *The Secret of Childhood*, (1936), Montessori included a quotation that she referred to as "something I wrote long ago, which I have discovered in a heap of old papers, which may be of documentary interest" (p. 120). The quotation paints a vivid picture of the children's tearful entry to the Casa dei Bambini and the poverty and neglect to which they had been exposed:

They were tearful, frightened children, so shy that it was impossible to get them to speak; their faces were expressionless, with bewildered eyes as though they had never seen anything in their lives. They were indeed poor, abandoned children, who had grown up in dark, tumbledown, slum dwellings, with nothing to stimulate their minds, and without care. Everyone could see they suffered from malnutrition; it was not necessary to be a doctor to recognize that they were in urgent need of food, open air life, and sunlight. (Montessori, 1936, p. 123)

These children had experienced chronic poverty and neglect, or what we would today refer to as ACEs (Felitti et al., 1998), and Montessori immediately recognized

that their emotional and social anxieties were inextricably linked to this experience.

The Children of Messina and Reggio Calabria (1908): A Sudden Exposure to Adversity and Trauma

Not long afterward, on December 28, 1908, at approximately 5:20 a.m., a violent earthquake hit Messina and Reggio Calabria with devastating force. The quake was followed within minutes by a powerful tsunami that caused 40-foot tidal waves to crash down on the coastal cities, reducing this area to little more than a heap of rubble (Pino et al., 2008). Thousands were trapped under the debris, suffering horrific and mostly fatal injuries. The death toll was estimated to be in the region of 80,000 to 100,000 (Bressan, 2012; Pino et al., 2008). There were some survivors, many of them children who “were left traumatized, homeless, and orphaned” (Mayfield, 2006, p. 5). Some were found days after the earthquake, wandering around in the ruins, shocked and traumatized. The earthquake left many children orphaned, and there was an urgent need to protect the survivors from further trauma. Through the press, the Italian government called on all those who could help these children to step forward (Moretti, 2014).

In *The Secret of Childhood*, Montessori (1936) reported that 60 children were accommodated in a specially formed Montessori school, which Anne George (1912) reported was located in the Franciscan convent on Via Giusti, under the patronage of Queen Margherita of Italy. Subsequently, in 1910, the nuns received training in the Montessori Method (Kramer, 1976). Montessori described the traumatized state of the children:

Here were orphans who had survived one of the greatest catastrophes, the Messina earthquake (1908), sixty small children discovered among the ruins. No one knew either their names or their social status.... This terrible shock had reduced them to near uniformity, they were numbed, silent, absent-minded. It was hard to make them eat, hard to get them to sleep. At night they could be heard screaming and crying. (Montessori, 1936, p. 152)

In this passage, Montessori shows her understanding that this terrible shock had traumatized the children, causing them to display what we would now refer to as posttraumatic stress.

The Children of France and Belgium (1916): A Protracted Exposure to Adversity and Trauma

Almost 10 years later, in the summer of 1916, when Europe was in the throes of the First World War, Montessori made a short visit to France to inspect the Montessori schools there (Montessori, 1917/2013). She found that all of the Montessori schools had been forced to close, as teachers dedicated themselves to helping the Red Cross (Montessori, 1917/2013). However, she found that there was one notable exception—an American teacher named Mary Cromwell, who had been trained in the Montessori Method of education and had personally organized and funded Montessori classes for French and Belgian refugee children (Montessori, 1917/2013). Cromwell witnessed firsthand the traumatizing impact of war on children. In a pamphlet she published in 1916 to raise funds to support her work with these war-torn children, she graphically described the various psychological presentations of the children. Some children were numb and unresponsive: “A sort of stupor invaded them and rendered them, for a long time, incapable of interest in anything” (Cromwell, 1916). Other children were in a constant state of alertness:

[The children’s] perpetual plans were to pile up the material, even the heaviest objects, as if haunted by the desire to reconstruct; or their acts reflected the scenes they had lived through in their invaded villages. With their small chairs and tables, they improvised cellars in which to hide most of the day, and the boys showed great enthusiasm in carrying, as guns, the long bars intended to commence arithmetic, these agitated days were repeated for weeks. (Cromwell, 1916)

Montessori vividly described the kind of psychological disturbance evident in the children:

There is found, in these refugee children, a special form of mental disturbance, which constitutes a real mental wound—a lesion that is as serious as, if not more serious, than wounds in the physical body.... These children came to her (Miss Cromwell) in a state of stupor, incapable of understanding, frightened at the approach of anyone, afraid by day as well as by night. (Montessori, 2017/2013, p. 37)

Montessori believed that these children were suffering from deep-rooted psychological difficulties: “these unfortunate little ones... are psychologically or

mentally mutilated” and were suffering from “wounds of the nervous system” (Montessori, 1917/2013, p. 39). These French and Belgian children had suffered what we would now call acute trauma as a result of this unexpected, man-made disaster (i.e., war) to which they had been exposed.

In sum, these four groups of children, the “persecuted,” “neglected,” and “rejected” children from the Roman psychiatric hospital (Montessori, 2008, p. 263); the “tearful, frightened children” of San Lorenzo (Montessori, 1936, p. 123); the “numbed, silent, absent-minded” children of Messina and Reggio Calabria (Montessori, 1936, p. 151); and the “psychologically or mentally mutilated” French and Belgian children (Montessori, 1917/2013, p. 39) shared one characteristic: all had been victims of ACEs or trauma, which Montessori recognized required a specific kind of healing and intervention.

How the Montessori Method Facilitated Healing From the Effects of Adversity and Trauma

The second theme identified from the analysis relates to how the Montessori Method facilitated healing. The evidence suggests that the Montessori Method facilitated healing and recovery by (a) calming and regulating the children, (b) reorganizing the disorganized brain, (c) preventing mental strain through the use of muscle memory, and (d) promoting the currently recognized key principles of TIP: safety, collaboration, choice, and empowerment. The next paragraphs elaborate on these points.

Activities That Calmed and Regulated the Children

Many eyewitnesses visiting the Montessori schools between 1907 and 1917, in which the last three of the four groups of trauma-impacted children described above were accommodated, noted that the children spent considerable time each day engaged in Practical Life, Sensorial, and cultural exercises that appeared to calm them. The Practical Life exercises involved either gross motor activities (e.g., sweeping courtyards, digging and weeding gardens, transporting soil back and forth in wheelbarrows, feeding and grooming animals) or fine motor activities (e.g., fastening and unfastening button, buckle, and lacing frames; folding and unfolding cloths; scrubbing tabletops; laying out mats and cutlery on tables for dining), as well as other practical and overtly meaningful exercises that required repetitive, rhythmic movements. These movements are what Montessori

termed *synthetic movement*, referring to movement that is not random but that requires that “movements of the hands are guided by the mind” (Montessori, 1936, p. 149) and that they carry out a specific purpose, with the body and the brain working in unison so that mental and motor activities are inseparable. She argued that movement without thought was chaotic, and thought without movement induced fatigue (Montessori, 1964). Standing (1957) referred to Montessori’s interpretation of synthetic movement as “movement ordered and directed by the mind to an intelligible purpose” (p. 214). The Practical Life exercises described above all require the child to use synthetic movements, and it is these synthetic movements that appear to promote repetition of the activity, which in turn brings regulation, calm, and tranquility (Bailey, 1915; Cromwell, 1916/2006; Fisher, 1912; George, 1912; Montessori, 1936).

Another feature of the Practical Life exercises relates to what we now call mindfulness. *Mindfulness* has been described as “a quality of focused attention on the present moment accompanied by a non-judgemental stance” (Lillard, 2011, p. 2). George and Fisher described this quality of focused attention in two particular Practical Life exercises that were initially developed to test the children’s hearing and develop their equilibrium, respectively. For example, the first of these—the daily Silence Game—involved the children silently tiptoeing to the teacher when their name was whispered; George (1912) commented on the calming effect of this activity: “The little bodies relax themselves softly, the breath comes evenly, and each child with his whole being settles himself to enjoy the silence. . . . The clock ticks; soft sounds come in from the cloister. . . as the silence grows” (p. 29). Fisher (1912) remarked on the children’s “trance-like immobility” (p. 45) during the game and the “expression of utter peace” (p. 45) on the children’s faces, stating that they “emerge from it sweeter, more obedient, calmed and gentler” (p. 47). In the second activity, Walking on the Line, the children focus their mind on balancing as they carefully walk on a large oval chalk line on the floor, sometimes holding a bell they try not to ring. According to one reporter (Tozier, 1911), the concentration and integration of mind and body required by the Silence Game “calmed all excessive excitability and restored placidity and tranquility. Sometimes [the children] ask for it twice in the day” (p. 15). These exercises seemed to represent mindful activities, producing a state of calm and appearing instrumental in promoting the children’s recovery. This emergence of a state of calm

after the practice of these two activities is consistent with contemporary research on trauma and highlights the important role of mindfulness for trauma survivors in facilitating the process of recognizing the ebb and flow of emotions and physical sensations, thereby illustrating the importance of emotional regulation (Alexander, 2019; Jennings, 2019).

A further feature of the Practical Life activities that helped regulate the children was the fact that many of these activities, which the children were free to engage in spontaneously, frequently took place outdoors, which “at once promoted their development and their happiness,” according to one eyewitness (White, 1914, p. 18). In addition, the children frequently ate their meals outdoors. Contemporary research suggests that outdoor activities can have therapeutic benefits for those who have been exposed to adversity or trauma because they help to normalize heart rate and blood pressure, which are often elevated by traumatic experiences (Sorrels, 2015). Other researchers have stated that the calming sounds of nature can reduce levels of the stress hormone cortisol in the body, which in turn can help reduce the stress response (Mulholland & O’Toole, 2021).

The Sensorial activities involved the use of scientifically graded and sequenced objects that induced patterned, repetitive, rhythmic acts as the child sorts, matches, compares, contrasts, classifies, and categorizes objects. The children were free to repeat these activities as many times as they felt the need to. For example, the Cylinder Block exercise, which involves inserting cylinders of varying sequential dimensions into a block of wood, seemed to induce repetition. Montessori herself described how, at the beginning of her experimental work in San Lorenzo, she witnessed a child in deep concentration repeating this exercise 42 times (Montessori, 1936). When the child had finally finished, she smiled and looked very contented. Montessori (1936) remarked that the child’s concentration “was accompanied by a rhythmic movement of the hands, evoked by an accurately made scientific graduated object” (p. 127). She asked the teachers not to prevent but to facilitate this repetition by not interrupting the child (Montessori, 1964). Likewise, eyewitnesses who visited the early Montessori schools commented on how the children frequently repeated the Sensorial activities over and over again (Fisher, 1912; Tozier, 1911), and when they finally stopped, they displayed a notable calmness and tranquility.

Children also frequently engaged in cultural activities, such as dance, music, movement, art, and sculpting, which involved repetitive, rhythmic movements. Eyewitnesses noted that these kinds of cultural activities calmed and regulated the children by the use of rhythm. Bailey (1915), in particular, described some of these activities in which the children “keep time to rhythmic music,” (p. 26) such as marching to a piano tune, sometimes slowly, sometimes quickly, “over and over again” (p. 22). She referred to other exercises “in which the little ones sing in time to the rhythmic movement of their feet” (p. 25) and said that these were all “rhythmic activities carried out upon a line” (p. 24). Artwork, such as clay modeling and drawing, were also observed by eyewitnesses to calm the children through the use of repetitive, rhythmic actions (Cromwell, 1916/2006).

Notably in this context, contemporary research from the field of neuroscience has demonstrated how neural dysregulation occurs in the aftermath of trauma, often leaving children feeling anxious, impulsive, and emotionally unstable (Perry, 2009). Research also shows how such dysregulation can be brought back into equilibrium by engagement in activities that are rhythmic and repetitive and that ultimately reduce anxiety and other “trauma-related symptoms” (Perry, 2009, p. 243). Therefore, it is arguable that frequent engagement in these repetitive, rhythmic activities likely played a major role in the healing or recovery of these children.

Activities That Organized the Disorganized Brain

Media reports also alluded to the tranquility the Sensorial activities brought to the children, and eyewitnesses pondered the extent to which this tranquility was caused by the Sensorial materials’ ability to encourage clarity of thinking and eliminate confusion (Tozier, 1911). For instance, one eyewitness who had observed children engaged in these Sensorial exercises wrote, “Nervousness gives way to tranquility. The happy tranquility to which the children come after a few weeks of independent work with the sense-training exercises is perhaps the most noticeable feature” (George, 1912, p. 26). Cromwell also conveyed to Montessori her opinion that working with these materials provided “a veritable cure” of all the children’s ills (Montessori, 1917/2013, p. 37). Other observers suggested that the Montessori Sensorial materials were hugely beneficial to the children because they were meticulously designed to enable them

to focus their attention on a single task and element such as color, shape, or weight, thereby eliminating unnecessary distraction and fostering a sense of clarity and calm upon task completion (Fisher, 1912).

As noted above, contemporary research shows that neural dysregulation can often occur after exposure to trauma, leaving the child feeling chaotic and subject to constant confusion because of the intrusion of sudden and unsolicited fragmentary memories that mix up past and present experiences (Sorrels, 2015). Overall, it seemed that the Montessori Sensorial activities helped to reorganize the disorganized brain (caused by trauma) through their emphasis on the meticulous sorting, comparing, contrasting, and categorizing of objects (Phillips & Phillips, 2016). This engagement in repetitive activity with scientifically designed materials, which incorporated gradations and sequencing into their construction, arguably played an important role in the children's recovery; all of these activities are now known to have a regulatory function and to facilitate healing via what neuroscientist Bruce Perry called "patterned, repetitive, neural input to the brainstem" (Perry, 2009, p. 243).

The Prevention of Mental Strain by the Use of Muscle Memory

Eyewitnesses noted that the Montessori Method, by its use of *muscle memory* (i.e., a type of memory that involves committing a specific motor task into memory through repetition), avoided exposing the children to mental strain. Specifically, media reports (e.g., Tozier, 1911) alluded to how the children in Montessori's early schools learned to feel sounds and numerals as the teacher guided their fingers over Sandpaper Letters and Numbers so that they could develop a muscle memory of their shapes. Likewise, a range of objects was used to teach mathematical principles, including, for example, long rods that required the children to stretch out their arms to hold the longest rod. The basic premise underlying these approaches was that they helped the child embody both language and mathematical concepts through the use of muscle memory, which was thought to reduce mental strain (Tozier, 1911) and in turn help with recovery. Stevens (1912) claimed that Montessori, "with a physician's knowledge of a human being and a teacher's insight into child life... shows us how to protect the nervous system from strain" (p. 81). Another observer wrote, "The most conspicuous of Maria Montessori's triumphs is that of teaching quite young

children, without putting the smallest strain on their faculties, first to write and then to read," (Tozier, 1911, p. 6); she added that Montessori "goes personally into the classes to show her teachers how to handle the children so that their nerves may be kept calm and their brains left un-taxed" (Tozier, 1911, p. 132). Some eyewitnesses were aware of Montessori's understanding of the neurological implications of her methods. One of them (Stevens, 1912) wrote that Montessori "realises the plasticity of the nervous system and the importance of building into its tissues by developing muscle memory, sensory associations, habitual reactions" (p. 81). Stevens appeared to be using the word *plasticity* as we would today, to denote the quality of being easily shaped or molded. In summary, it seemed that these kinds of activities, based on muscle memory and the embodiment of concepts, helped protect the brain from becoming overtaxed. Contemporary authors have noted that children who have suffered adversity and trauma usually live in a constant state of alertness because they are continually scanning the environment to try to protect themselves and possibly others from danger (Treisman, 2017). This state can leave the brain overtaxed and stressed, so any expectation or requirement to absorb academic content may place an intolerable strain upon children; absorbing academic content via muscle memory clearly avoided strain, as evidenced by the fact that the children voluntarily kept repeating the exercises (Fisher, 1912; Tozier, 1911).

The Promotion of the Key Principles of Trauma-Informed Practice

A further factor identified as important to Montessori's apparent success in providing a healing environment was her promotion of what we now know to be key principles of TIP: safety, collaboration, empowerment, and choice (Fallot & Harris, 2009).

Safety. Supporting children to feel safe is an essential principle of TIP (Fallot & Harris, 2009). Our analysis revealed that physical and emotional safety were ensured in Montessori's schools by several practices: the promotion of positive relational interactions, the absence of rewards and punishments, the use of self-correcting materials, and the facility for individual activity. Let us elaborate.

The promotion of positive, relational interactions in the schools helped reduce fear in the children and promoted a feeling of safety. Referring to the children from the Roman psychiatric hospitals or "asylums," Montessori wrote:

When these children from the streets and from the asylums entered my school they were greeted with hearty manifestations of welcome and with genuine cordiality. For the first time they were made to feel that they were wanted and desired. (Montessori, 2008, p. 264).

Early eyewitnesses described the children's relationships with their teachers as warm, affectionate, and respectful (Bailey, 1915; Cromwell, 1916/2006; Fisher, 1912; George, 1912; Montessori, 2008; Tozier, 1911). One eyewitness (Bailey, 1915) described how the directress, when responding to a little boy's state of withdrawal (the child in question had lost both his parents in the Messina and Reggio Calabria earthquake), would stop beside the boy's chair and "hold his hand, kindly for a minute in hers, or just bend over him, smiling straight down into his face" (p. 38). She would then repeat the words, "No one will hurt this little man of ours. He loves us and we love him" (p. 38). She comforted the child repeatedly with loving words "until one day her patience reaped the prize of Bruno's [the boy's] answering smile and she felt his two hungry little arms clasping her" (p. 38). Montessori instructed her teachers to always be mindful of a child's possible exposure to traumatic events. She told them to consider the child:

Has the child had any frights, or other kinds of shock?... If the child is difficult or capricious, we seek for possible causes of this in the life he has led hitherto.... If we know what upsets have occurred at each period of the child's life, we can estimate their gravity and probable response to treatment. (Montessori, 1967, p. 196)

Montessori was effectively instructing her teachers to ask themselves not "What is wrong with this child?" but rather to consider the question "What has happened to this child?" just as recommended in recent trauma literature (Perry & Winfrey, 2021); in this respect, too, she was considerably ahead of her time. Many eyewitnesses, as well as Montessori herself, observed the absence of aggressive behavior or bullying among the children (Fisher, 1912; George, 1912; Montessori, 1964; White, 1914), as well as the children's genuine concern for and helpfulness toward each other, which featured prominently in many reports (Bailey, 1915; Fisher 1912; George, 1912; Montessori, 1964; Tozier, 1911; White, 1914). For example, White wrote that "very little reproving was done. Disputes went on in the playground, but for the most part no one interfered, and it ended....

The atmosphere was one of tranquility, love and trust" (White, 1914, p. 52). Current research points toward the centrality of attuned, responsive relationships in the healing process (Cherry, 2021; Maté, 2019; Treisman, 2017), which suggests that the promotion of positive relational interactions as part of the overall Montessori approach played a key role in promoting the recovery of these children.

The absence of rewards and punishments would have enhanced the children's feeling of safety. Media reports announced, "Rewards and punishments are rigorously banished from the Houses of Childhood" (Tozier, 1911, p. 10). Eyewitnesses noted that this removal of rewards and punishments helped reduce the children's anxiety and made them feel safe (especially those who had been exposed to physical abuse), thereby preventing retraumatization (Bailey, 1915; Tozier, 1911). Moreover, regarding rewards, recent research suggests that rewards can be harmful in that they may lead to feelings of being manipulated or controlled, and children who have been exposed to trauma have often been manipulated and controlled, frequently by the very people who were supposed to care for them (Treisman, 2017). Thus, rewards run the risk of retraumatization, which, according to much contemporary research, is to be avoided at all costs (Alexander, 2019; Jennings, 2019). This finding suggests that Montessori's removal of rewards and punishments may have had considerable merit and contributed positively to the children's sense of safety and their overall healing.

The provision of "self-corrective" materials (Fisher, 1912, p. 73)—that is, materials that indicate error, allowing the user to repeat the activity until the error is corrected—most likely provided the children with a feeling of safety because children who have experienced abuse have found that asking for help frequently leads to humiliating criticism or ridicule (Sorrels, 2015). Furthermore, self-correcting exercises can arguably help build resilience because of their requirement that users repeatedly correct their own mistakes. This necessity to correct one's mistakes may lead to a kind of mild adaptive stress, or what neuroscientist Bruce Perry called "controllable, predictable stress," which ultimately "helps build resilience" (Perry & Winfrey, 2021, p. 194). The continuous building of resilience, coupled with the experience of successful mastery of activities, leads to the development of autonomy and self-esteem, both of which are vital to trauma recovery.

The provision of opportunities for individual activity ensured a sense of physical safety. Many eyewitnesses indicated that, although group activities such as singing or dancing took place daily, individual activity was frequently chosen by the children themselves, often for protracted periods of time (Fisher, 1912; White, 1914). The children designated their own personal space by spreading a mat on the floor, on which others were required not to walk. This practice enhanced their feeling of safety. Children who have experienced adversity or trauma often feel a strong need for solitude to process their emotions without the added stress of having to engage with others (Perry & Winfrey, 2021). In this respect, individual activity provided the children with a safe space in which to process their emotions.

Collaboration. Research also shows that collaborative activity can be healing for children who have experienced trauma because it removes the feeling of being “disconnected or separate from others,” often felt by children who have experienced adversity or trauma (Craig, 2016, p. 82). Many eyewitnesses commented on the amount of spontaneous collaboration among the children, the positive effects of the mixture of age groups, and the amount of peer-to-peer teaching that took place. For instance, George (1912) wrote, “I have never ceased to be impressed by the fact that this method made it possible for children of different ages to work together. . . . The big ones helped the little ones, and the little ones watched the big ones” (p. 26). These collaborative activities appeared to promote a strong sense of connectedness to others and, in that respect, had a therapeutic effect.

Empowerment. Eyewitnesses commented frequently on the remarkable level of confidence and empowerment evident in the children (Fisher, 1912; George, 1912; Tozier, 1911; White, 1914). This sense of confidence and empowerment came about through their growing independence, which was achieved through mastery of the exercises, especially the Practical Life skills. Achieving independence is very important for children who have been traumatized because it enables them to have some level of control over their lives, thereby leading to a sense of empowerment. This result can have therapeutic benefits for trauma-affected children because one of the aspects of traumatic experience is the sense of helplessness and powerlessness that often accompanies it (Treisman, 2017).

Choice. Many eyewitnesses observed the children’s freedom to choose their own activities and to spend as

much time as they wished engaged with them (Fisher, 1912; White, 1914). Freedom of choice is especially important for children who have been exposed to adversity or trauma because they have often previously experienced coercive control (Treisman, 2017); thus, providing choice can have an empowering and healing effect on them.

In summary, the application of these approaches resulted in indisputable psychological healing in the four groups of children described earlier, eventually contributing to the recognition by “child-specialists” (Montessori, 1936, p. 193) of Montessori schools as “Health Homes (*Case della Salute*)” (Montessori, 1966, p. 181). Moreover, when Montessori addressed the British Psychological Society in 1919, “the keynote of the meeting was the question whether the work that she is doing will eventually make the work of the ‘nerve-specialist’ superfluous” (Radice, 1920, p. 139). In addition, Hugh Crichton-Miller—the famous Scottish psychiatrist and founder of the Tavistock Clinic in London, a mental health facility, who translated Montessori’s address—was reported as saying, “When the Montessori system is established in all schools, almshouses will have to be set up for the psychoanalysts” (Radice, 1920, p. 139). It is significant that Crichton-Miller’s work centered on developing psychological treatments for shell-shocked soldiers during and after World War I.

The four groups of children exposed to the Montessori Method demonstrated psychological healing in several ways. First, the children from the “asylums,” (Montessori, 1964, p. 31), who had been excluded from schools precisely because they could not learn, subsequently learned to read and write so well that Montessori presented them for the State Examinations; they passed, much to the shock of her colleagues, who considered her achievement to be “miraculous” (Montessori, 1964, p. 38). Second, the children from San Lorenzo, who were fearful, silent, without expression, and totally lacking in social skills on the opening day of the school, were reported to have become confident, talkative, full of expression, and extremely sociable in a short period of time (Fisher, 1912; Montessori, 1964; Tozier, 1911). They also were reported to have developed both practical and precocious academic skills. Most of them started writing at the age of 4 and reading shortly afterward (Tozier, 1911). Their overall development was so remarkable that professionals from the fields of journalism, medicine, social science, education, politics,

and religion traveled to see them with their own eyes (Fisher, 1912). Third, the children who survived the Messina and Reggio Calabria earthquake—who were “numbed, silent, absent-minded,” (Montessori, 1936, p. 152), unable to eat or sleep, and suffering night terrors—reportedly became calm and happy and began to excel in both practical and academic activities such as reading and writing. Again, educators from all around the world came to see them. One such eyewitness (Marguiles, 1913) wrote:

It is difficult to describe what now happened in America, and I believe that it is unique in the history of education. A veritable frenzy took possession of educators. Educational magazines, scientific magazines, newspapers in the North, South, East, and West brought full-page illustrated articles on the work of Montessori and her Case dei Bambini” (p. 497).

She then remarked that, in correspondence she had with Professor Howard Warren of Princeton University, he made a statement regarding Montessori’s Method:

My own field is psychology, and I am quite prepared to meet any attacks from that quarter. My interest in Montessori’s method arises from the fact that it is good psychology. (Marguiles, 1913, p. 502)

Fourth, the French and Belgian refugees, who were initially in a state of stupor, incapable of understanding, and “frightened at the approach of anyone” (Montessori, 2013/2017, p. 37), were also reported to have become calm, happy, and engaged in various occupations, such as the care of plants and birds, drawing and modeling with clay, exercises with the Sensorial materials, and exercises with Sandpaper Letters and the Movable Alphabet (Cromwell, 1916/2006). Cromwell also reported that the children covered the blackboards with simple words and shortly afterward were able to write letters to their fathers in the trenches. She added that they subsequently engaged in the advanced activities of the Montessori curriculum for older children, with great success.

Montessori’s Proposal for Trauma-Informed Courses for Teachers and Nurses

The third and final theme identified from the analysis relates to Montessori’s proposal to establish trauma-informed training courses for teachers and nurses to enable them to better meet the psychological needs of

traumatized children, particularly by war and natural disasters. These courses would form part of the work of an organization she hoped to establish and call the White Cross. She envisioned this as a sister organization to the Red Cross but with the specific aim of addressing the psychological needs of children who, as victims of such adversities as wars and natural disasters, were displaying the signs and symptoms of trauma. A 1916 newspaper article (“The White Cross: Montessori’s Scheme”) reported that Montessori, “whose method has a wonderful calming influence on nervous children,” (para. 1) was making plans to deliver “a theoretical and practical course in the Montessori method as especially applied to children under war conditions,” (para. 2) as part of a larger program to be delivered “with the assistance of medical specialists in nervous diseases” (para. 2). The article implied that this was to be a large-scale project that would “send out working groups to France, Belgium, Serbia, Romania, Russia, and other European countries” (para. 3). A similar article published in 1917 (“The White Cross: Care of Child Victims”) reported that the aim of the White Cross was to “restore the injured child-mind to normal activity and joy” (para. 2). Later, in 1917, while in San Diego delivering a formal address, Montessori suggested that her proposal for a trauma-informed course as part of the work of the White Cross reflected the culmination of years of active work and reflection on “the treatment of the nervous” (Montessori, 1917/2013, p. 39). She said, “My long study and work as a physician and then as an educator have led me to carefully consider the care of the nervous system” (Montessori, 1917/2013, p. 39). Mayfield (2006) also highlighted Montessori’s understanding of the importance of the child’s psychological as well as physical health:

Montessori realized that, while providing for the physical and medical needs of children was essential during disasters, their psychological and emotional needs should also be addressed. Her recognition of the traumas of victims of the Messina earthquake, plus her observations of schools for war refugee children in France, and the devastation of World War I contributed to her call for an international organization to address these children’s needs. (p. 5)

Mayfield (quoting Babini & Lama, 2000, p. 288) further pointed out that, as early as 1915, Montessori “expressed her wish to found an organization” to be called “una croce bianca dei bambini” [a white cross for children] (Mayfield, 2006, p. 5).

Montessori emphasized that an essential element of the White Cross organization would be the preparation and delivery by an interdisciplinary team of an intensive, free-of-charge course to prepare what she called *teacher-nurses* to rehabilitate and restore mental health to these troubled children. These White Cross workers would be a combination of nurses and teachers who would “specialize in nervous diseases and psychic or mental ills” (Montessori, 1917/2013, p. 40). She suggested that these workers “should be trained by nerve specialists, who should put to the use of these individuals all that science has discovered in order that they may care for and cure these nervously suffering children” (Montessori, 1917/2013, p. 40). Montessori (1917/2013) also emphasized that these teacher-nurses should learn “special methods of education,” (p. 40), by which she meant the Montessori Method, which she said Mary Cromwell had described as “a veritable cure” (p. 37) of the war-torn children’s ailments.

Montessori spoke authoritatively about the role of education as a response to children suffering with mental health difficulties, stating emphatically that “the treatment of nervous diseases cannot be by medicine and may properly be called education” (Montessori, 1917/2013, p. 39). She highlighted the urgent need for the coming together of experts in medicine and science to inform this intensive program for teacher-nurses. She also proposed a detailed study to fully investigate trauma and traumatic responses in these children. It appeared to her that “an organization of people preparing to go to the assistance of these children should first make a study of the child—a wide study based upon observations of the various psychological phenomena exhibited in these war children” (Montessori, 1917/2013, p. 40). However, while Montessori was tireless in her efforts to gain support for the establishment of the White Cross, her proposal was ultimately unsuccessful.

Discussion

Currently, there is a strong interest in finding ways to incorporate trauma-informed practice into education (Alexander, 2019; Cossentino, 2016; Craig, 2016; Jennings, 2019). Our findings reported here show that the Montessori Method, as practiced in the early schools, was by its very nature both trauma informed and trauma responsive. After years of research and working intensively with vulnerable children, Montessori found a way of helping many children recover, to a greater or

lesser extent, from adversity and trauma so that they could enjoy life, thrive, and excel. Essentially, she created an environment in which children who had been harmed by adversity or trauma could benefit therapeutically. This was achieved by the children’s daily engagement in a range of daily practical, sensorial, academic, and mindfulness-based activities that involved music, movement, dance, art, and horticultural pursuits. The children were free to engage in these activities at their own pace, and all of these activities appeared to have a healing impact on their neurological, social, emotional, and cognitive well-being. This healing impact appeared to lead directly to positive learning and academic performance, as well as other aspects of overall well-being, such as improved self-esteem and independence. A central element of the Montessori Method appeared to be the freedom the children were given to select their own materials and activities and to engage with them for as long as desired. Essentially, the children controlled their own therapy and dosage. This practice is surely unique in the history of education. Another key distinguishing factor underpinning Montessori’s approach to trauma was that healing or the promotion of recovery was not seen as an add-on but instead was woven into the very fabric of the school—the materials, the approaches, the teachers, and the entire school environment. Again, considerable evidence today suggests that such whole-school approaches offer the most effective means to tackle mental health and well-being and to incorporate trauma-informed approaches within schools and other educational settings (Cole et al., 2005; Craig, 2016; Walpow et al., 2016).

All evidence suggests that Montessori’s pedagogical approach was deeply influenced by her involvement with trauma-affected children, to the point that in later life, she began to see mental health and well-being as fundamental to education (Montessori, 1917/2013). This understanding of the vital importance of mental health is very much in line with contemporary thinking and research that focuses not only on the need to support the mental health and well-being of children in schools, but also on identifying ways to incorporate TIP into education to specifically address the impact of ACEs on children’s social, emotional, and cognitive functioning (Alexander, 2019; Craig, 2016; Jennings, 2019).

Throughout her life, Montessori was relentless in advocating for schools that promote and support psychological well-being in children so that they might be better able to find joy and happiness, whatever their

circumstances. The question now is “How can we build on this?” This question will be the focus of stage two of our study, where we will incorporate the findings from this documentary analysis of archival accounts of Montessori’s early schools with the contemporary knowledge base of trauma and trauma-informed practice to design an ongoing professional-development program, initially directed at practicing teachers, both Montessori trained and non-Montessori trained. The program will be designed to facilitate an understanding of how the mind and body are affected by trauma and the different coping strategies used by children. This program will draw on the key aspects of the Montessori Method that proved effective in facilitating psychological healing in children as revealed in our historical analysis, and it will also be grounded in the key principles of TIP (i.e., safety, collaboration, empowerment, choice, trust, respect for diversity [Fallot & Harris, 2009]). This program will be delivered and tested (in service) in a number of Montessori and non-Montessori preschools, with the aim of continuing and building upon Montessori’s important early work.

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