



# Perceptions and Practices of Parents Regarding Responsive Parenting for Early Child Development

**Mamtha Jadhav<sup>a\*</sup>, Prasad Patil<sup>a#</sup>, Abhay Gaidhane<sup>b≡</sup>  
and Swaroopa Chakole<sup>b≡</sup>**

<sup>a</sup> *Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Wardha, India.*

<sup>b</sup> *Community Medicine, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Wardha, India.*

## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

## **Article Information**

DOI: 10.9734/JPRI/2021/v33i60B34873

## **Open Peer Review History:**

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/81402>

**Review Article**

**Received 18 October 2021**  
**Accepted 22 December 2021**  
**Published 25 December 2021**

## **ABSTRACT**

Early childhood development (ECD) encompasses physical, socio-emotional, cognitive, and motor development. The early years are critical because this is the period in life when the brain develops most rapidly and has a high capacity for change, and the foundation is laid for health and wellbeing throughout life. Children benefit from engaging, demanding, and supportive environments to develop these skills, which serve as a framework for healthy self-regulatory practices and academic tenacity. Children have a deep curiosity in observing new things, learning through mimicking their caregivers, and a desire to master new abilities from birth. Early childhood education provided to caregivers assists youngsters in reaching their full potential. It has been discovered that responsive parenting is still not performed and that there are no notions of it in the rural area. Caregivers are still unaware of critical competencies to raise their child; there are negative consequences to the standard authoritarian parenting style; research has shown that an authoritative parenting style is good for the child in the long run. Parents find it difficult, but these early days are critical for the child's brain and body, necessitating enough nutrition, proper stimulation, tender love, and care to help them grow into physically and intellectually sound humans.

<sup>#</sup> *Medical student;*

<sup>≡</sup> *Professor;*

<sup>\*</sup>*Corresponding author: E-mail: mamthaj999@gmail.com;*

**Keywords:** *Early childhood development (ECD); physical; socio-emotional; cognitive; motor development.*

## 1. INTRODUCTION

Appropriately addressing verbal cues and contingencies that seem appropriate for the child's developmental level is essential for responsive parenting [1]. It is claimed that this strategy facilitates the formation of powerful bonds between infants and kids, their parents and guardians, through which they identify and comprehend spoken and gestured conveying of messages to each other [1]. This shared course of action provides a framework for establishing an emotional relationship, a crucial pillar for proper societal operations and appropriate feeding behaviors [2,3].

Ventura and Birch identify three parenting practices: parents as providers, role models, or controllers [3].

Salovey and Mayer coined the term "emotional intelligence," which defines a set of abilities that aid in accurately assessing and expressing emotions. According to studies, emotional intelligence, as a learned skill [4,5] is linked to physical, emotional, and social health [6] well-being, self-monitoring in social situations, popularity, and social competence.

Parenting styles and the child's ability to perceive it are two influential social factors in developing emotional intelligence

Each type of conduct is strongly linked to a particular form of parenting. Initially, three parenting types were defined based on considerable observation, interviews, and analysis: authoritative, authoritarian, and permissive parenting.

## 2. AUTHORITATIVE (DEMOCRATIC)

Authoritative parenting is an oriented approach towards the child with lofty maturity expectations. This type of parenting involves parents capable of understanding the emotions of their kids and who train them to control their feelings. Even after possessing lofty conjectures or exceeding expectations for their child's growth, authoritative parents generally tolerate most shortcomings. Children brought up by dominant parents tend to show increased independence and self-dependence. The authoritative parenting style comes into play amid elevated levels of parental receptiveness and high parental demands.

## 3. AUTHORITARIAN (CONTROLLING)

Authoritarian parenting style- rigid, penalizing, and chastising rich style of child care involves parents pushing their kids to execute commands without any justification or criticism and placing emphasis on the kid's and family's perception and class.

Since parents usually dictate what needs to be done instead of permitting their kids to make choices for themselves, kids brought up in this fashion lack social skills, appear to stand out in the short run but restrain intellectual growth in ways that become glaringly evident as parental control declines.

### 3.1 Indulgent (Permissive)

It is described as the lack of behavioral expectations from their children. "Permissive parenting" is described as a style of child care with parents and kids deeply associated with one another and still do not put several demands or bounds on them.

Parents that are permissive aim to be "friends" with their children rather than parents.

The child's expectations are modest, and there is a little discipline. Permissive parents also allow their children to make their own decisions while providing friendly guidance.

Children with permissive parents could turn out to be more impulsive. Being teenagers, they could participate in inappropriate conduct, like drug abuse.

"Children rarely gain knowledge to keep a check on the conduct which they exhibit and carter the expectations of always receiving what they desire," says one expert.

However, in the optimistic outcome, they may be expressively safe and sound, self-sufficient, and possess the strength to accept defeat. Children belonging to this group mature swiftly furthermore show the capacity of surviving without the aid of others.

A study conducted in 1991 establishes that when parents are both demanding and responsive, adolescents are more likely to be ideally

competent and A study conducted in 1996 helps us conclude that when compared to authoritative parenting, which yielded good outcomes, permissive and authoritarian parenting had an intermediate influence on academic attainment.

Aggression was favorably related to authoritarian parenting, while peer acceptability, sociability-competence, distinguished studentship, and school academic accomplishment were negatively associated. Parental authoritative style, on the other hand, was positively related with indices of social and school adjustment and adversely connected with adjustment issues.

A study in 2005 suggests that authoritative parenting practices aid higher academic attainment. Culture, ethnicity, and socioeconomic class, on the other hand, have an impact on authoritative parenting styles. Parental participation and monitoring have an impact on academic progress as well.

The review of literature is done under the following headings-

- a) Practices to Promote Nutrition and Physical Activity
- b) Practice to Promote physical well-being and security
  - b.1 Breastfeeding
  - b.2 Vaccination
- c) Knowledge of parenting practices
- d) Parenting Attitudes
- e) Behavioral discipline practices
- f) Practices to promote Emotional, Behavioral and Social competence
- g) Practices to stimulate Cognitive Development
- h) Parenting within Family Systems

The importance of routines and the organization of the home environment

### **3.2 Practices to Promote Nutrition and Physical Activity**

Parents and parenting practices have a massive impact on their children's activities involving nutrition and physical activity.

Responsive parenting (Responsive Feeding) strategies are most likely to be used by parents and caregivers who practice responsive

parenting. As a result, it's no surprise that the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) have vouched for Responsive Feeding to be part of their feeding protocols for new-born and little kids [7].

These behaviors manage what, when, and how children are supposed to consume food by controlling what is accessible, influencing structuring eating etiquette, and limiting and keeping track of food availability to the child and its utilization. The above habits might vary between children of the same family and are typically condition-related (Ex- if a kid is unwell, malnourished, or obese).

"Parenting style" refers to how parents interact with their children in terms of approach and conduct in each aspect of child care. As a result, the parental feeding styles, which refers to the interaction pattern of behavior that occurs during feeding between caregivers and children, filters into the parenting style.

Parents who exemplify healthy eating habits for their children and provide a healthy diet to them, especially at infancy and childhood, when children are scared to try new things, may realize that their children embrace and devour them. Hill [5], Natale et al. [6], and Sussner et al. are just a few examples.

It's worth noting that a kid's feeding capacities and demands synchronize with modifications in motor, cognitive, and social growth over the initial span of life.

Less nutritious meals and beverages may exacerbate obesity in children in the home. For example, Dennison [7] and Welsh [8] have found a relationship between obesity during childhood with the use of sugar-sweetened beverages.

Also, Antenatal care can aid the mother to decrease the chances of pregnancy difficulties and awful delivery consequences by adopting hale and hearty habits (such as cessation of smoking, getting ample relaxation, and eating properly), highlighting and addressing any challenges that occur. Health care workers can also counsel parents about the health benefits, baby injury and preventing disease, and other behaviors in a time frame well before the birth of a child.

### 3.3 Practice to Promote Physical Well-being and Security

#### 3.3.1 Breast feeding

A mother's approach and principles about breastfeeding (attitudes toward nursing in public and the notion that it will be inconvenient) have been linked to breastfeeding initiation and continuation in surveys and research done and appear to play a role in variations of breastfeeding frequencies and practices viewed around ethnic and other demographic groups [9-11].

Breastfeeding is linked with a slight increase in IQ in a child and adults, a decreased threat of type IID.M and plumpness afterward in life, and a reduced risk of cardiac and vascular illness, concerning a WHO investigation (Horta et al.). Breastfeeding is also beneficial to mom's health by mitigating the chances of depression after delivery, some cancers, and medical illnesses diabetes.

According to WHO [12] women should exclusively breastfeed their infants until six months old. Following that, and until the kid reaches the age of one year (AAP) or two years (WHO), it is advised that the infant should be breastfed while introduced to various other nutritional foods/supplements.

#### b2. Vaccination

Parental attitudes and opinions about further and safety of immunization determine immunization behavior, as per Mergler et al. [10], Salathé and Bonhoeffer; Vannice et al. [11].

Parents' awareness and interpretation of information about vaccination and their attitudes toward vaccination may influence parental vaccination habits.

### 3.4 Knowledge of Parenting Practices

Several studies have found that mothers who have a strong understanding of child development are more likely to provide books and learning materials tailored to their children's interests and ages, and moms who have a weak knowledge participate in more reading, chatting, and storytelling.(Curenton et al. [13], Gardner et al. [14], Grusec et al. [15].

Fathers who are more aware of their children's early language and literacy development are better prepared to help them [16].

Caregivers that are ignorant to the fact-which is learning begins at birth are ignorant to take steps to promote early learning (such as story-telling to babies), alternatively recognizing the significance of introducing babies and kids to literature and language. E.g., moms that perceive their children aren't paying attention are less inclined to give respond to their children's attempts at talks or interactions [17].

Intervention research provides more evidence of the relevance of child growth knowledge in assisting results for child care. Brought up in randomized controlled trials, young children's parents demonstrated increased understanding of their child's growth and practices related to initial days of child care and awareness about proper feeding [1].

Furthermore, a study suggests that parents cognizant of immunization are more likely to comprehend its purpose and adhere to the immunization schedule [18].

Parents who are acquainted with trauma avoidance would succeed in providing safe and homely environmental conditions to their kids and decreasing unintentional accidents [19,20].

Parents' parenting attitudes are impacted by their understanding of parenting and the ideals and goals (or expectations) they have for their children's growth, which is influenced by cultural, social, and societal images and their own experiences and overall values and aspirations [16]. Rosenthal and Roer-Strier [21], Whiting and Whiting [22].

There has been relatively little research on parents' perceptions toward specific parenting approaches. Much of the existing research focuses on strategies that promote physical health and safety.

Some believe that parents play an essential role in their children's education, while others believe that the school is the prime enabler of their education and caregiver's play only a minor

Role Cultural norms, parental education, or parental comfort with imparting specific abilities to their children may influence these attitudes. For example, some parents may be less involved in their child's schooling because they are unsure of their abilities or have had negative school experiences in the past (Lareau et al., Lawrence-Lightfoot et al.). As previously stated, some

parents believe that arithmetic abilities are less important for their children than other talents, and therefore do not consider educating kids about these topics at their homes.

Several studies of parent-child dialogue have found evidence of parenting's potential impact on language development. Providing children with labels (e.g., for objects, numbers, and letters) to promote and reinforce knowledge, responding contingently to their speech, eliciting and maintaining conversation with them, and simply talking to them more frequently are linked to vocabulary development according to this study [23].

According to language development studies, language acquisition is linked to supplying an educational stage in a kid's initial language exposure, like providing a social platform for communication and questioning further about "what," "where," and "why" inquiries [24].

### **3.4.1 Parenting attitudes**

Regarding the importance and significance of discipline, parents within and across cultures have different perspectives and practices. According to some parenting literature, some caregivers try to discipline their kids by controlling them while a few try to correct [24].

### **3.4.2 Behavioral discipline practices**

A powerful bond between parents and their children, a method for education, and intensifying preferred behaviors, and a plan for reducing undesirable behaviors are all regarded as necessary for effective discipline (American Academy of Pediatrics).

A study found that caregivers who approached physical punishment as primary means than any other noble means were associated with less favorable child outcomes. Kids beaten frequently as youngsters and as adults were more likely to be violent than children who were not chastised [25].

## **3.5 Practices to Promote Emotional and Behavioral Competence and Social Competence**

The ability of parents to instill a feeling of commitment and own identity in their children is critical to their progress. They also play a role in their child's societal aptitude by teaching them

willpower, teamwork, and compassion, which equip them to form and sustain meaningful interactions with friends. Caregivers can assist their children in developing and acquiring social skills by engaging in positive interactions with them. Many theoretical frameworks, including attachment theory, acknowledge children's societal skills [26].

1998- A study conducted this year proves that extrinsic motivation is elicited by authoritarian parenting, intrinsic motivation is elicited by authoritative parenting, and demotivation is elicited by neglectful parenting

Also, According to a study published in Taylor & Francis, warmth is linked to better child outcomes.

## **3.6 Practices to Kindle Intellectual Development**

Parents are child's first guru, perform a critical influence in the intellectual development, and the attaining talents like language, reading, and mathematics skills, that are further linked to school and societal triumph. Children can benefit from a variety of enriching and stimulating activities to help them develop these skills.

A study conducted in 1992 establishes that students who rated their parents as authoritative parents had higher school involvement and higher school success.

A study conducted in 1996 helps us conclude that when compared to authoritative parenting, which yielded good outcomes, permissive and authoritarian parenting had an intermediate influence on academic attainment.

A 2005 study suggests that higher academic attainment is aided by authoritative parenting practices. Culture, ethnicity, and socioeconomic class, on the other hand, have an impact on authoritative parenting styles. Parental participation and monitoring have an impact on academic progress as well.

## **3.7 Parenting within Family Systems**

The family follows an ever-changing rules that gives us routines, control behavior, legitimize emotive care and countenance, facilitate message, organized influence assembly and facilitate problem solving [27].

In the family system, roles are built upon a blueprint which could effect parenting.

Members of a family enhance and mitigate for one another, smoothing off rough edges and substituting for one another's flaws.

### **3.8 Structuring of the Home Environment and the Significance of Routines**

Routines which enhance specific developmental goals have spawned a plethora of literatures. For example, in an RCT by Mindell et al in which mothers who were trained to follow a routine reported fewer problems of sleep in their child

The ability of children to manage their attention and arousal is severely harmed by household instability [28]. A Child brought up in messy situations might tune out from their surroundings which has ill effects on the social, emotional and intellectual abilities of a child

As we walk through the twenty-first century, we encounter new technology, scientific research, and present and future international events, but the most essential thing to bear in mind is today's society's children. Children are our future and our tomorrow [28,29].

The prosperity of a nation is determined not so much by its financial and natural resources as it is by the type and quality of its children and young. They will be the architects and shapers of a country's future, so why should any child be denied the opportunity to fulfill his full potential, regardless of socioeconomic background or whether the child lives in a rural or urban area?

According to the findings, the occurrence of authoritarian and authoritative is similar, while permissive is the least common. The predominance of authoritarian parenting is not a healthy sign for children's mental health [30-34].

Simply being unaware of basic facts such as the idea that all a child requires is good stimulation, adequate nutrition and parental warmth is the primary reason that caregivers are unaware of correct parenting techniques or the right use of government facilities such as ECEC.

### **4. CONCLUSION**

The study has concluded the importance of responsive parenting and the home based responsive parenting program is the need of the hour.

### **DISCLAIMER**

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

### **CONSENT**

It is not applicable.

### **ETHICAL APPROVAL**

It is not applicable.

### **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

### **REFERENCES**

1. Black MM, Aboud FE. Responsive Feeding Is Embedded in a Theoretical Framework of Responsive Parenting. *J Nutr.* 2011; 141(3):490-4
2. Bremner JG, Wachs TD. *The Wiley-Blackwell Handbook of Infant Development: Second Edition. Vol. 2, The Wiley-Blackwell Handbook of Infant Development: Second Edition; 2010*
3. Ventura AK, Birch LL. Does parenting affect children's eating and weight status? *Vol. 5, International Journal of Behavioral Nutrition and Physical Activity; 2008.*
4. Parke RD, Ornstein PA, Rieser JJ, Zahn-Waxler CE. *A century of developmental psychology. American Psychological Association; 1994.*
5. Vaaler ML, Stagg J, Parks SE, Erickson T, Castrucci BC. Breast-feeding attitudes and behavior among WIC mothers in Texas. *Journal of nutrition education and behavior.* 2010;42(3):S30-8.
6. Natale RA, Messiah SE, Asfour L, Uhlhorn SB, Delamater A, Arheart KL. Role modeling as an early childhood obesity prevention strategy: effect of parents and teachers on preschool children's healthy lifestyle habits. *Journal of Developmental & Behavioral Pediatrics.* 2014;35(6):378-87.

7. Dennison BA, Rockwell HL, Baker SL. Excess fruit juice consumption by preschool-aged children is associated with short stature and obesity. *Pediatrics*. 1997;99(1):15-22.
8. Welsh JA, Cogswell ME, Rogers S, Rockett H, Mei Z, Grummer-Strawn LM. Overweight among low-income preschool children associated with the consumption of sweet drinks: Missouri, 1999–2002. *Pediatrics*. 2005;115(2):e223-9.
9. Wojcicki JM, Gugig R, Tran C, Kathiravan S, Holbrook K, Heyman MB. Early exclusive breastfeeding and maternal attitudes towards infant feeding in a population of new mothers in San Francisco, California. *Breastfeeding medicine*. 2010;5(1):9-15.
10. Mergler MJ, Omer SB, Pan WK, Navar-Boggan AM, Orenstein W, Marcuse EK, Taylor J, DeHart MP, Carter TC, Damico A, Halsey N. Association of vaccine-related attitudes and beliefs between parents and health care providers. *Vaccine*. 2013;31(41):4591-5.
11. Vannice KS, Salmon DA, Shui I, Omer SB, Kissner J, Edwards KM, Sparks R, Dekker CL, Klein NP, Gust DA. Attitudes and beliefs of parents concerned about vaccines: impact of timing of immunization information. *Pediatrics*. 2011;127(Supplement 1):S120-6.
12. WHO Publication. *Global Strategy on Infant and Young Child Feeding*. World Health Organization; 2008.
13. Curenton SM, Justice LM. African American and Caucasian preschoolers' use of decontextualized language: Literate language features in oral narratives. *Language, Speech, and Hearing Services in Schools*. 2004;35(3):240-253. [https://www.nap.edu/read/21868/chapter/1#chapter02\\_pz104-18](https://www.nap.edu/read/21868/chapter/1#chapter02_pz104-18)
14. Gardner-Neblett N, Pungello EP, Iruka IU. Oral narrative skills: Implications for the reading development of African American children. *Child Development Perspectives*. 2012;6(3):218-24.
15. Grusec JE. Socialization processes in the family: Social and emotional development. *Annual review of psychology*. 2011;62:243-69.
16. Cabrera NJ, Fitzgerald HE, Bradley RH, Roggman L. The ecology of father-child relationships: An expanded model. *Journal of Family Theory & Review*. 2014;6(4):336-54.
17. Putnam SP, Sanson AV, Rothbart MK. Child temperament and parenting. In M.H. Bornstein (Ed.), *Handbook of Parenting*. Mahwah, NJ: Lawrence Erlbaum Associates. 2002;1:255-277.
18. Smailbegovic MS, Laing GJ, Bedford H. Why do parents decide against immunization? The effect of health beliefs and health professionals. *Child: care, health and development*. 2003; 29(4):303-11.
19. Corrarino JE. Health literacy and women's health: challenges and opportunities. *Journal of Midwifery & Women's Health*. 2013;58(3):257-64.
20. Morrongiello BA, Kiriakou S. Mothers' home-safety practices for preventing six types of childhood injuries: what do they do, and why?. *Journal of Pediatric Psychology*. 2004;29(4):285-97.
21. Rosenthal MK, Roer-Strier D. What sort of an adult would you like your child to be?: Mothers' developmental goals in different cultural communities in Israel. *International Journal of Behavioral Development*. 2006;30(6):517-28.
22. Larzelere RE, Kuhn BR. Comparing child outcomes of physical punishment and alternative disciplinary tactics: a meta-analysis. *Clin Child Fam Psychol Rev*. 2005;8(1):1-37. DOI: 10.1007/s10567-005-2340-z. PMID: 15898303.
23. Hart B, Risley TR. *Meaningful differences in the everyday experience of young American children*. Paul H Brookes Publishing; 1995.
24. *Effective discipline for children*. *Paediatric Child Health*. 2004;9(1):37-50. DOI: 10.1093/pch/9.1.37. PMID: 19654979; PMCID: PMC2719514.
25. Dewey K. *Guiding Principals for Complementary Feeding of the Breastfed Child*. WHO Glob Consult Complement Feed; 2001. Available: <https://iris.paho.org/handle/10665.2/752>
26. Bakken L, Brown N, Downing B. Early Childhood Education: The Long-Term Benefits. *Journal of Research in Childhood Education*. 2017;31(2):255-69.
27. Goldenberg C, Hicks J, Lit I. *Dual Language Learners: Effective Instruction in Early Childhood*. *American Educator*. 2013;37(2):26-9.
28. Gary W. Evans, *Departments of Design and Environmental Analysis and Human*

- Development, Cornell University, Ithaca, NY; 14853-4401.  
e-mail: gwe1@cornell.edu. Kimberly English is also at Cornell University.
29. Whiting BB. (Ed.). Six cultures: Studies of child rearing. Wiley; 1963.
  30. Gaidhane, Abhay, Penny Holding, Minal Shah, Manoj Patil, Shital Telrandhe, Navnita Jadhav, Priti Kogade, Sonali Chaudhari, and Quazi Syed Zahiruddin. Photostory-A 'Stepping Stone' Approach to Community Engagement in Early Child Development. *Frontiers in Public Health*. 2020;8.  
Available:<https://doi.org/10.3389/fpubh.2020.578814>.
  31. Patil, Manoj, Shital Telrandhe, Mahalaqua Nazli Khatib, Shilpa Gaidhane, Deepak Saxena, Pankaj Bhardwaj, Bhaskaran Unnikrishnan, Abhay M. Gaidhane, and Zahiruddin Quazi Syed. Stimulating Home Environment for Early Childhood Development by Household Play Materials for Under 5 Rural Children in Forest Buffer Zone of Wardha District. *Journal Of Evolution Of Medical and Dental Sciences-JEMDS*. 2020;9(16):1336–40.  
Available:<https://doi.org/10.14260/jemds/2020/291>.
  32. Khatib, Mahalaqua Nazli, Mahjabeen Ahmed, Deepak Saxena, B. Unnikrishnan, Shilpa Gaidhane, Abhay M. Gaidhane, and Zahiruddin Quazi Syed. Protocol for a Systematic Review of Effects of Parenting Interventions on Early Childhood Development in Low- and Middle-Income Countries. *Journal of Evolution of Medical and Dental Sciences-JEMDS*. 2019; 8(52):4005–10.  
Available:<https://doi.org/10.14260/jemds/2019/866>.
  33. Khatib, Mahalaqua Nazli, Abhay Gaidhane, Mahjabeen Ahmed, Deepak Saxena, and Zahiruddin Quazi Syed. Early Childhood Development Programs in Low Middle-Income Countries for Rearing Healthy Children: A Systematic Review. *Journal of Clinical and Diagnostic Research*. 2020; 14(1):LE1–7.  
Available:<https://doi.org/10.7860/JCDR/2020/42134.13445>.
  34. Mittal, Vani, Tushar Jagzape, and Priyanka Sachdeva. Care Seeking Behaviour of Families for Their Sick Infants and Factors Impeding to Their Early Care Seeking in Rural Part of Central India. *Journal of Clinical and Diagnostic Research*. 2018;12(4):SC8–12.  
Available:<https://doi.org/10.7860/JCDR/2018/28130.11401>.

© 2021 Jadhav et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*

*The peer review history for this paper can be accessed here:*  
<https://www.sdiarticle5.com/review-history/81402>