

An overview of Disposable Vs Cloth diapers in terms of environment sustainability

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ABSTRACT

Disposable diapers have been the standard for baby hygiene for many years. Disposable diapers are unquestionably more appropriate and popular among young mothers and their usage is likely to grow due to the growing population. One of the unpleasant and undeniable facts about disposable diaper is their disposal pattern. A vast majority of populace dispose of baby diapers in the open. This may lead to contamination of water, air and land surfaces, and become one of the prime causes of water/Air borne contagious diseases widely occurring among community. The most obvious impact of disposable diapers on the environment is that they are thrown away piling up garbage every day. For this reason, generating awareness on proper disposal of diapers is another crucial issue linked with its use.

Key Words : Disposable, Cloth, Diaper, Baby, Environment, Sustainability

INTRODUCTION

In recent years there has been a growing awareness of the many environmental problems that exist such as global warming, ozone depletion, water and air pollution, excessive resource consumption and hazardous waste to name a few. These issues affect people, societies and ecosystems. Efforts are being made to build a “greener” more sustainable image by adopting eco-friendly’s ways of living to build greater support for more sustainable development. Decades ago, clothes were built to last and styles were timeless. These days, fabrics are cheap, fads are passing, and the realities of our disposable wardrobes are stark. But clothing made with self-proclaimed sustainable or eco-friendly fabrics are not the only aspect of making a green garment, despite clearly being an important component of evolving wardrobe of family.

Health and hygiene are the primary requirements for baby to live comfortably. With the advent of new technologies, the growing needs of the consumer in the wake of baby care and hygiene can be fulfilled without compromising the issues related to safety, baby care and

environment. (Chandrasekaran *et al.*, 2012).

Disposable diapers have been the standard for baby hygiene for many years. A disposable diaper is an absorbent pad sandwiched between two sheets of non-woven fabric. The pad typically contains chemical crystals that can absorb up to 800 times their weight in liquid and hold it in gel form. That helps to keep liquid away from baby’s skin. According to manufacturers, this means a baby can remain in a disposable diaper longer than in a cloth diaper without causing him discomfort. Most disposable diapers can absorb far more liquid than a child is likely to produce during a single use. Disposable diapers are undeniably more convenient and popular among young mothers and their usage is likely to grow due to the growing population. Disposable diapers are quite expensive, one has to spend a large proportion of their income on disposable baby diapers by the time the baby is potty-trained. Further, if you use “eco-friendly” branded disposable diapers, which are biodegradable and/or not bleached with chlorine, the expenditure further exceeds the budget limit.

According to Verma (2017) in a study on

'Preference of disposable vs cloth diapers by mothers' revealed that majority of the respondents (46%) were using cloth diapers in which 14 per cent were using homemade diapers and 32 per cent were using readymade cloth diapers because in their opinion it was cheap and comfortable for the baby skin followed by 38 per cent respondents who were using disposable diapers because of its hygienic character, convenient to use and comfortable for the baby's tender skin.

One of the unpleasant and undeniable facts about disposable diaper is their disposal pattern. A vast majority of populace dispose of baby diapers in the open. This may lead to contamination of water, air and land surfaces, and become one of the prime causes of water/Air borne contagious diseases widely occurring among community. Furthermore, diapers do not degrade and when incinerated gases from the plastics are released into the air. The most obvious impact of disposable diapers on the environment is that they are thrown away piling up garbage every day. For this reason, generating awareness on proper disposal of diapers is another crucial issue linked with its use.

Varieties in cloth diapers :

Cloth diapers are usually made from softer, thicker and absorbent fabrics: Cotton fleece, terry, all unbleached materials. Flannel is the softest against the skin and the most absorbent. Some cloth diapers have inserts that you wash and reuse, and others have liners that can be tossed. Fully washable diapers tend to be less expensive to maintain than those that need disposable inserts. The parents have choice in homemade cloth diapers selecting a fabric that suits their needs, and those of their babies. There are two basic categories of diaper materials to choose from: synthetic, which are manmade materials; and natural, which come from either plant or animal sources.

Pocket diapers consist of a waterproof covering that includes a pocket into that you insert a folded diaper or a disposable or washable liner. Velcro fasteners or several rows of snaps (for different fits) keep the covering closed. These are a variation on pocket diapers in which the diaper is sewn to the outer waterproof cover. They're convenient for quick changes on the go and, with an extra diaper inside, can work well overnight. But they're bulky and thick, so they might need more time in the dryer after laundering.

Unfolded Diapers are rectangles of flat fabric that

you fold to fit your baby's shape, holding them in place with diaper pins in three places (the left and right sides, and the center). Unfolded diapers can also be folded and placed inside a Velcro or snap-closing waterproof cover, which you'll have to buy in different sizes as your baby grows.

Commonly used diaper materials:

Waterproof Layers :

- Waterproof Layers are commonly made of polyurethane laminate and thermoplastic polyurethane. The waterproof layers of cloth diapers prevents diaper leakage.

Absorbency Layers :

- **Bamboo** : Bamboo fiber is an incredibly absorbent material and naturally resistant to bacterial growth, making it an excellent fabric for diapering. The bamboo plant is incredibly fast growing and therefore is often farmed with little negative impact on the surrounding ecology. Although, the process of converting bamboo wood into the soft and absorbent fiber that is found in diapers is an incredibly complex and harsh chemical process that does have negative side effects, for this reason the labeling of bamboo as an organic material is misleading.
- **Cotton** : Cotton is the one of the most commonly used plant-based fiber on earth due to its absorbency, comfort and versatile functionality.
- **Hemp** : Hemp is a natural fiber that is more hydroscopic than cotton and naturally resistant to bacterial growth. Hemp materials are quite thin while still absorbent, but they do not absorb as quickly as cotton or polyester. For this reason, in diapers, hemp fabric is often paired with another absorbent fiber, such as in a hemp/cotton blend.
- **Microfiber** fabric is a blend of polyamide and polyester. Microfiber is tremendously absorbent and can hold up to seven times their weight in liquids. For that reason, it is a common fabric used in making absorbent inserts or soaker layers for cloth diapers. It is also frequently used to make pocket diaper inserts.
- **Fleece** : Polyester fleece comes in many weights and varieties and can perform several different functions. Thicker fleeces can be used

in making a breathable cover for diapers. If there is a very absorbent diaper underneath, fleece can be an incredibly successful fabric as a cover for diapers since it is so water resistant, yet porous for breathability.

Pure cotton cloth having resilient texture and surface with pile weave can be of good use in reusable cloth diaper as it is more breathable and comfortable to skin while in use. Further, cloth diapers can be much less expensive than disposables, and can be safely wash at home for consistent later use.

Advantages of Cloth Diapers :

The key benefits as stated by *Pham and Brown (2009)* are that reusable diapers are less expensive and healthier to use. According to— *Juliet Spurrier MD, and Alison Buck*, it Saves money ,better for baby’s health and better for the environment too.

Related studies

- *Meseldzija et al.* in their study on “*Assessment of the differing environmental impacts between reusable and disposable diapers*” also revealed that while both cloth and disposable diapers have an impact on our environment in the ways they are made, transported, disposed of and laundered, the damage from cloth diapers is smaller than that of disposable diapers. Disposable diaper make a huge part of household garbage and occupy a large per cent of landfills. Because of plastic and super-absorbance gel they contained it takes hundreds of years for them to decompose. On the other hand, cotton diapers are made from mostly renewable resources, like cotton, bamboo or hemp. They also use lots of water and energy during production and maintaining and do create green gasses emission. But depending on how parent washes and dries them, much of this negative impact can be mitigated. Even if they have the same impact on the environment as disposables, we must keep in mind the fact that during the approximately two and a half years, a period from baby born to being potty trained, one baby will need between 15 and 25 cloth diapers, while for the same period between 5000 and 7500 reusable diapers is going to be needed.
- In an article on “*Top 5 Materials for Reusable*

Diapers 2013”, *June 9, 2014* it was revealed that *Cloth diapers* have become a popular choice among families. Reusable cloth diapers, whether purchased or homemade, can be constructed of a variety of materials. Each material used in diaper making provides its own attributes. Synthetic, or manmade, materials are usually less expensive than natural materials, but tend to be more susceptible to odors. Natural fibers, those that come from plant or animal sources, are usually more expensive, but launder easily and hold fewer odors. Absorbency, softness, and durability are just a few of the thing’s parents should consider when choosing materials for reusable diapers.

- *The 2008 UK Environmental Agency* study notes that one can reduce cloth global warming impact to be *40% less than disposables* by following these eco-tips-
 - Line dry when possible
 - Use energy efficient appliances
 - Reuse diapers on your 2nd child
 - Wash fuller loads
- *Pinkie E. Zwane, 2010* in a research on *Product Development: Reusable Diaper*, revealed that a prototype was successfully designed and made for geriatrics. The developed product has long-term economic benefits, from six months to a one-year lifespan given its serviceability for intended use. The product basically offers a better and healthy alternative to the daily washing of bed linen, and outer clothing by the caregivers, and helps lessen the potential viral transmission.
- According to a study conducted by the University of Queensland, “reusable nappies have the potential for the least environmental impact”, Reusable nappies can be made from a variety of materials, including organic cotton, bamboo, wool and hemp. Some manufacturers argue that making nappies from these materials is much more beneficial for the environment, since these plants don’t require harsh chemicals and pesticides to grow. In addition to being disposable, some eco-friendly nappies can also be flushed down the toilet or even buried in the garden for fertilization. Many manufacturers of biodegradable and eco-friendly nappies are also committed to lessening environmental impact on

a whole, which means sourcing their materials from sustainable suppliers and developing their nappies using environmentally conscious methods.

Conclusion:

There is emergent need of environmental sensitization to ensure good health among people along with sustainability aspect of the environment. Selection of disposable vs cloth diaper for younger babies in the families should be based on environmental impact in long run. In terms of energy waste and pollution on a large scale and also links to other problems associated with deforestation and non-sustainable sourcing. There is need to look beyond personal to wider perspective in terms of community hygiene, happy & healthier people living in clean environment, the choice of using eco-friendly, biodegradable products for self and family is the need of the hour.

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