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CASE REPORT

Pulling back Technique as a Method to Decrease Self-Injurious Behavior (SIB) in a Female Pig-tail Macaque Model (A Case Report)

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Abstract

Aim: This paper aims to describe how to decrease hair-plucking behavior in a female pig-tail macaque model as one of Self-Injurious Behavior (SIB) representations of human behavior by using a different way called 'pulling back' technique.

Method: An action researched by applying an environmental analyses used to examined its effectiveness on the case. The subject inserted from an artificial individual cage without any grass into a semi natural cage with plenty of grass, leaf, and insects. An instantaneous sampling method (per minute in a ten minutes) used to calculated the amount of hair-plucking behavior between two conditions.

Result: The level of hair-plucking behavior was lower at the semi natural cage with plenty of grass, leaf, and insects. It shown us that hair-plucking behavior had been replaced by plucking grass, leaf, and insects. It seems that plucking grass, leaf, and insects as a previous learning experience had evolved into a different form of maladaptive function as hair-plucking behavior. Although plucking behavior has a central function of feeding behavior since we knew that non-human primates used their hands to hold the food rather than other lower species, but here this behavior faced to malfunction since the behavior couldn't keep its normal function to support survival effort rather than produced serious injuried-body. Here, hair-plucking behavior seems like to be a consequence or side-effect of tick-seeking behavior.

Keywords: Self-Injurious Behavior (SIB), plucking hair, a female pig-tail macaque model.

Introduction

The main function of behavior as a way for relief any emotional pain or to support survival effort could be a psychiatric problem when it produces more destructive-effect toward any living thing included the body it self. Self-Injurious Behavior (SIB) was one of the psychiatric problems should consider as its contribution to greater number of suicide behavior in human societies. To seek problem solving of SelfInjurious Behavior (SIB) in human while avoiding ethical complexities, non-human primate models such as monkeys were common used [1]. Although environmental manipulations such as pairing [2] housing monkeys in outdoor pen environments [3], increasing enrichment in the form of puzzle feeders [4], and increasing cage size [5] were common used as techniques to decrease SIB in monkeys, but still SIB has also been reported in socially housed monkeys in zoo environments [6] and in Japanese macaques living in natural environments [7]. It seems that lack of natural or social attachment not to be the only cause of this behavior. That is why here we propose a different way called 'pulling back' technique as a method based on a perspective that SIB may comes from as a maladaptive function of previous learning experience. It refers to conserve the previous target of the behavior before the target had changed. This method would keep the original function of the certain behavior when it failed in a certain adaptation level in a changing world. In this paper we demonstrate how a hair-plucking behavior (as a representation of Self-Injurious Behavior) in a monkey could be decreased just by replaced it back to its original function as a plucking behavior of the grass, leafs, and insects. We hope the technique could save all species life early without any invasive treatments when their behavior failed to change from adaptation processes than fall into more maladaptive functions which harmed their self.

Methods

A female piq-tail macaque (3 years old) named 'Ayu' had faced daily screening for medical check up through her feces by a veterinarian. A microscopic examination in local laboratory found no bacterial or another pets such as fungus or ticks on

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her skin. We conducted an action researched by applying an environmental analyses and then used 'pulling back' technique. In first condition 'A', hair-plucking behavior (as one of SIB) observed from an artificial individual cage about (3x3x3m) made from iron restrictions having no partner, enrichment, or grass. It calculated by using an instantaneous sampling method (per minute in a ten minutes) with replications as six times per 6 hours in one day. It recorded by using a video camera (please see the video A as supplementary material). One day later, we applied the technique. The macaque inserted into second condition 'B' was a semi natural cage about (10x10x3m) made from iron restrictions having plenty of grass, leaf, and insects (ants, etc). Hair-plucking behavior observed, calculated, and recorded by using a same method as first condition 'A ' (with replications as six times per 6 hours in one day). (Please see the video B as supplementary material). This research was conducted in Animal Rescue Center, Tabanan Bali Indonesia.

Results & Discussion

In first condition 'A' (an artificial individual cage without any grass), the subject seems like has a little amount of hair on her body and then performs plucking hair (Figure 1). Here, hair-plucking behavior seems like to be a consequence or side-effect of tick-seeking behavior. Then eating the hair when tick was unreachable (Figures 2,3).

Constantly, these behaviors observed at 100% level (36 times at first hour until 6 hours of observations) (Table 1). In second condition 'B' (a semi natural cage with plenty of grass, leaf, and insects), the subject performed a little of these plucking hair of 19,44% level (4 times at first hour (11.11%), 2 times at second hours (5.56%), 1 times at third hours (2.78%) and 0 time at fourth hours until sixth hours of observations) but plucking grass, leaf, and insects (Table 2) and then eating it (Figure 4). The level of hair-plucking behavior was lower at the semi natural cage with plenty of grass, leaf, and insects (condition 'B') (Figure 5).

Figure 1: Plucking hair as a side-effect of tick-seeking behavior in condition 'A'.

Figure 2: Eating the hair when tick was unreachable in condition 'A'.

Figure 3: Plucking grass, leaf, and insects in condition 'B'.

Hours	Minutes						Total	(%)
	0-10	10-20	20-30	30-40	40-50	50-60		
1	√	√	√	√	√	√	6	100%
2	√	√	√	√	√	√	6	100%
3	√	√	√	√	√	√	6	100%
4	√	√	√	√	√	√	6	100%
5	√	√	√	√	√	√	6	100%
6	√	√	√	√	√	√	6	100%
Total	6	6	6	6	6	6	36	100%

Table 1: The frequency of hair-plucking behavior in condition "A".

Hours	Minutes						Total	(%)
	0-10	10-20	20-30	30-40	40-50	50-60		
1	√	√	√	-	-	√	4	11.11%
2	-	√	-	-	-	√	2	5.56%
3	-	√	-	-	-	-	1	2.78%
4	-	-	-	-	-	-	0	0%
5	-	-	-	-	-	-	0	0%
6	-	-	-	-	-	-	0	0%
Total	1	3	1	0	0	2	7	19.44%

Table 2: The frequency of hair-plucking behavior in condition "B".

This result shown us that hair-plucking behavior had been replaced by plucking grass or leaf or ticks. It seems that plucking grass, leaf, insects or something out of body as a previous learning experience had evolved into a different form of maladaptive function as hair-plucking behavior. This excessive behavior may seem first addressed to reduce itches-effect by plucking ticks than hair. But plucking ticks would be more easy when no hair exist. It meant that hair-plucking behavior were the first step done together with got the tick. The other hand, eating the hair was an alternation when the tick unreachable or it didn't exist. Although plucking behavior has a central function of feeding behavior since we knew that non-human primates used their hands to hold the food rather than other lower species, but here this behavior faced to malfunction since the behavior couldn't keep its normal function to support survival effort rather than produced serious injuried-body.

Figure 4: Eating grass, leaf, and insects in condition 'B'.

Conclusion

These results may have a natural implication to Self-Injurious Behavior (SIB) in human. In human, a self could be a substitute-target for injurious behavior when the other one than self was not reachable. Self-Injurious Behavior (SIB) may as replacement of environmental-injurious, partner-injurious, or other-injurious. Based on these results we propose that a 'pulling back' technique may use to reduce Self-Injurious Behavior (SIB) by seeking and kept the original function of the certain behavior when it failed in a certain adaptation levels in a changing world.

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References

1. Novak MA, Tiefenbacher ST, Lutz C, Meyer JS (2006). Deprived environments and stereotypies: Insights from primatology. In: Mason G, Rushen J (eds.), Stereotypic Animal Behaviour: Fundamentals and Applications to Welfare. CABI, Wallingford, UK. pp: 153-189. [View Article]
2. Baker KC, Bloomsmith MA, Oettinger B, Neu K, Griffis C, et al (2013). Comparing options for pair housing rhesus macaques using behavioral welfare measures. AM J Primatol;76: 30-42. [View Article]
3. Fontenot MB, Wilkes MN, Lynch CS (2006). Effects of outdoor housing on selfinjurious and stereotypic behavior in adult male rhesus macaques (Macaca mulatta). J Am Assoc Lab Anim Sci; 45: 35-43. [View Article]
4. Novak MA, Kinsey JH, Jorgensen MJ, Hazen TJ (1998). The effects of puzzle feeders on pathological behavior in individually housed rhesus macaques. Amer J Primatol; 46: 213-27. [View Article]
5. Kaufman BM, Pouliot AL, Tiefenbacher ST, Novak MA (2004). Short and longterm effects of a substantial change in cage size on rhesus macaques (Macaca mulatta). Appl Anim Behav Sci;88: 319-330. [View Article]

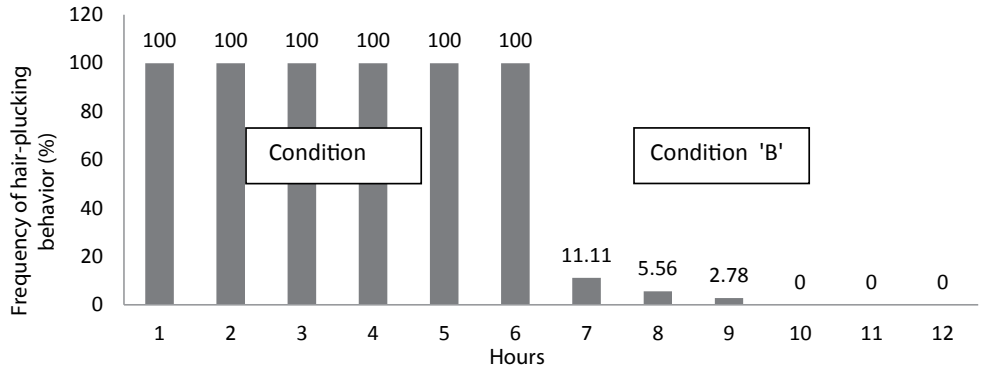

Figure 5: The level of hair-plucking behavior in two conditions.

6. Grewal BS (1981). Self-wrist biting in Arashiyama-B troop of Japanese monkeys (Macaca fuscata fuscata). Primates; 22: 277-280. [View Article]

7. Novak MA, El-Mallah SN, Menard MT (2014). Use of the cross-translational model to study self-injurious behavior in human and nonhuman primates. ILAR Journal;55: 274-283.[View Article]

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