

Local wisdom in wound treatment practice in Tengger tribe farmers

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ABSTRACT

Introduction: Farmers have a high risk of injury either due to the use of agricultural tools, or chemicals, or the geographical conditions of the agricultural area. This study aimed to describe the use of local wisdom in the practice of wound treatment among Tengger tribal farmers in Indonesia.

Materials and Methods: This qualitative study used accidental sampling, conducted in the agricultural land of Ngadisari Village, Sukapura District, Probolinggo Regency, East Java for 3 weeks in November 2020. This study involved all farmers who were working on the land at the time of the study (n=30). The questionnaires consist of demographic, wound characteristics and wound treatment processes.

Results: The practice of wound treatment for the Tengger Tribe farmers is divided into two stages, namely the initial wound stage (stopping bleeding) using gums of medical plants and the wound healing stage, which is divided into treatment for the outer body using mashed leaf herbs and for the inner body using herbs that function to increase body stamina.

Conclusion: The local wisdom Tengger ethnic-based wound treatment uses whatever is in nature to stop the bleeding and increase the wound healing process.

KEYWORDS:

Wound treatment, complementary therapy, Tengger tribe, Agronursing

INTRODUCTION

Agriculture has traditionally been one of the most dangerous jobs for workers.^{1,2} Farming has a mortality rate five times higher than all other professions combined. This increased risk of death is accompanied by a progressively more severe degree of injury. Globally, at least 170,000 agricultural workers are seriously injured each year. Non-fatal injuries occur in approximately 33% of the farming population in the United States, with 3% of accidents resulting in permanent disability.^{3,4} In Indonesia, the incidence of injuries nationally has increased, and the prevalence of injuries that occur to farmers or farm workers is 8.2%.⁵ Most of the injuries (89%) occurred during agricultural work.⁶

Wounds that commonly occur in farmers are cuts (79.7%), stab wounds (11.3%) and lacerations (7.5%). Mostly caused

by hand tools followed by slipping at work, sharp instruments, animals and falls from heights.² The Tengger people live on the slopes of Mount Bromo and Semeru⁷ with the livelihoods of most of the people farming. Agricultural fields are on mountain slopes and hilly peaks. This condition places Tengger farmers at risk of injury. The traumatic injury required emergency medical attention, something that took a long time to reach the agricultural area that sits on a mountainside. This causes farmers to do anything to deal with injuries or wounds that occur in agricultural areas. The Tengger tribe is one of the tribes in Indonesia that still adhere to its customs and culture, including local knowledge regarding treatment using medicinal plants.⁸ Previous research has succeeded in identifying the types of plants used in medicine by the Tengger people, but there has been no research on plants or other materials that are specifically used by the community, especially Tengger tribal farmers when an injury occurs.

MATERIALS AND METHODS

This study used a qualitative design to describe the use of local wisdom in wound treatment practice among Tengger ethnic farmers. Data collection methods through in-depth interviews were then described in narrative form. The population in this study is the farmers in Ngadisari Village. The research was conducted on the agricultural land of Ngadisari Village, for 3 weeks in November 2020, and involved all farmers who were working on the land at the time of the study, using accidental sampling. This research information is taken from farming communities who have experienced injuries and their healing using natural materials. The total number of participants was 30 people. The questionnaires consist of demographic data, wound characteristics and wound treatment processes from the initial to the recovery phase. The characteristics of the participants, characteristics of the wound and wound management were described in descriptive analysis using percentages and frequency.

RESULTS

The majority of participants were female (60%). The location of the almost injuries (76,7%) was on the hands (on the fingers), 63,4% has cuts with a length of 0.5-2 cm and a depth of about 0.5 cm. Most of the injuries (93,4%) were caused by sharp objects, and the majority of the participants (80,2%) used traditional therapy (Table I). Figure 1 shows that the wound treatment practice used by the participants

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Table I: Demographic, characteristics of the wound and wound management among farmers (n=30)

Variables	n	%
Gender		
Male	12	40
Female	18	60
Cause of wound		
Sharp objects (agricultural tools such as sickles and hoes)	28	93.4
Accidents on the way to and from work	2	6.6
Wound location		
Hand (on the fingers)	23	76.7
Foot	6	20
Head	1	3.3
Wound length and depth (cm)		
0,5-2 and 0,5	19	63.4
>3 and 0,5-1	11	36.6
Wound management		
Traditional therapy	24	80.2
Combined medical and traditional therapy	6	19.8

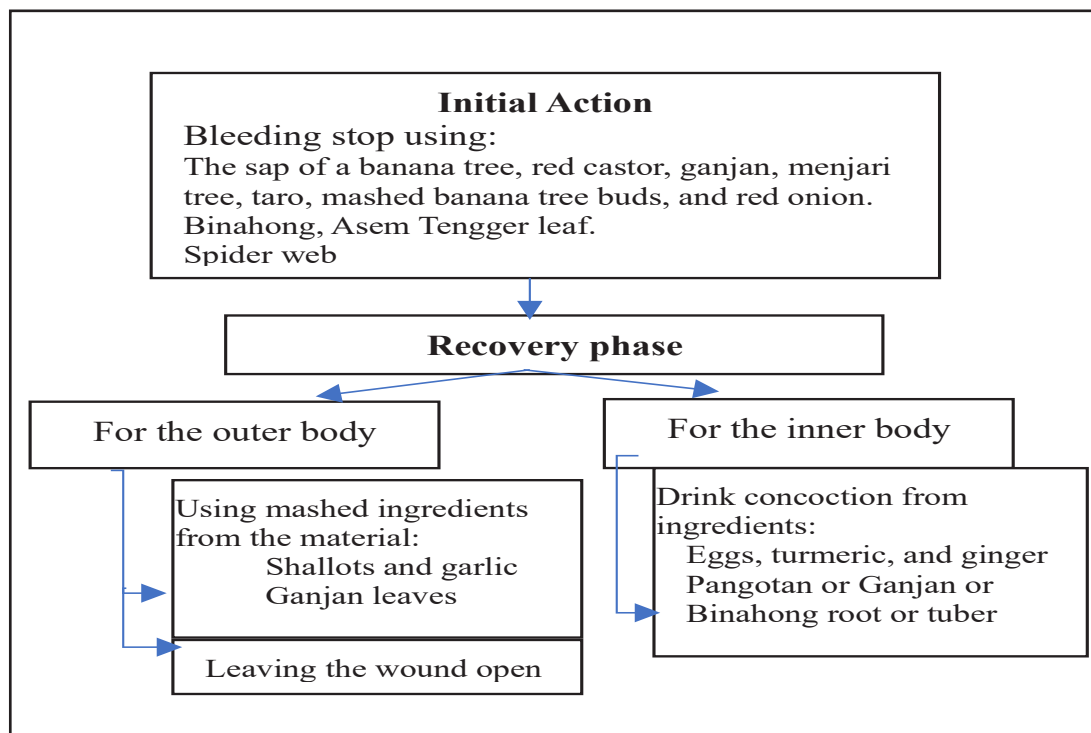


Fig. 1: Wound treatment Practice by Farmer in the Tengger Tribe

consists of two phases. The initial action is to stop bleeding and the second phase is the recovery phase using therapy for the inner and outer body.

When an injury occurs in the fields, participants immediately look for banana leaf sap, red castor leaf sap, ganjan leaf sap, taro stem sap or menjari tree sap, as well as banana tree buds, then pound them and apply them to the injured area. Participants also use binahong leaves, but they said that this

treatment did not originate from their ancestors. They will take bihanong leaves (usually an odd number of 3,5,7) then pound them and apply them to the wound area. Several participants wrapped their wounds with Asem Tengger leaves, and cobwebs found around the fields. A few participants sprinkled the wounds with the soil or doused them with their urine. Another action taken is to suppress the bleeding area with a cloth, especially on wounds with massive bleeding. After arriving home, they clean the

wounds and then soak them in warm water. During the recovery phase, the participants were drinking concoctions made from free-range chicken eggs, mixed with turmeric and ginger (turmeric 2 fingers, ginger 1 finger, washed, cut into pieces, boiled with a cup of water, until the water is reduced. The cold boiled water is then mixed with 1 free-range chicken egg); or drinking boiled herbs roots/tubers by taking about one handful of tubers or roots and then boiling it with enough water, consumed coldly twice a day. While therapy for the outer body by using a mashed ingredient, the wound is left open.

DISCUSSION

Most farmers tend to choose traditional therapy because it works fast and is practical. The location of the fields which are quite far from health facilities (about 3-5 km) makes the community think that the fastest way to deal with wounds is to take advantage of materials available around the fields. One participant uses a combination of medical and traditional therapy, because the wound occurred in the head area and was quite wide, so medical action was needed to suture the wound to stop the bleeding and close the wound. Then proceed with traditional therapy during the healing process.

At the beginning of the injury, most participants stated that they use traditional therapies that have been passed down from generation to generation without knowing the scientific reasons. However, several studies can provide scientific reasons for this. The previous studies identified that banana, red castor, ganjan leaf sap, taro stem sap or menjari tree sap contain materials that help wound healing, namely flavonoids, saponins, tannins and alkaloids. Flavonoids shorten the time of inflammation and activate macrophages. Saponins increase the formation of new blood vessels in wounds, the process of fibroblast proliferation and the synthesis of other extracellular matrix collagen.⁹ Tannins and alkaloids function as antioxidants to reduce free radicals by transferring hydrogen atoms to the wound area and increasing wound closure.¹⁰ Lectin in taro plays a role in immune function and cell growth.¹¹ Polyphenolic compounds and essential oils in menjari tree (*Sonchus Asper Hill*) sap have anti-inflammatory properties. Ganjan (*Artemisia vulgaris L.*) also contains antibacterial agents such as sesquiterpenes and terpenoids.¹² Asem Tengger (*Radicula Armoracia Robinson*) leaves contain kaempferol and quercetin which plays a role as an antiseptic.¹³ When using these ingredients, there is no specific dosage for each ingredient. The amount of material used follows the adequacy of the material to cover the wound.

Spider webs are believed by participants to heal wounds quickly and stop bleeding. Scientifically, spider webs can reduce wound closure and re-epithelialisation time, also rich in vitamin K.¹⁴ Participants sprinkling the wound with soil is related to the Tengger people's belief in fire, water, air and earth as the main elements.¹⁵ Soaking the wound in warm water is done because warm water has a cleansing effect and reduces pain. Participants doused the wound with urine because previous generations believed it could stop bleeding and speed-up wound healing.

In the recovery phase, curcumin compounds in turmeric have antimicrobial and antioxidant properties. Oral treatment of curcumin is found to be more potent than topical treatment for angiogenesis at wound sites.¹⁶ A complete essential amino acid in chicken eggs is the main ingredient in the formation of damaged tissue cells.¹⁷ Ginger (*Zingiber officinale Roscoe*) can increase the density of collagen fibres⁹ and the number of fibroblast cells.¹⁸ The use of shallot and garlic "lanang" mash because hereditary traditions are believed to speed up the wound-drying process. The garlic "lanang" contain saltivine, scordinin, Gurwitch rays which can accelerate cell growth and sulphur in garlic, which is volatile when exposed to air and can speed up the wound-drying process.¹⁹ The action of the wound is left open because, according to participants drying of the wound will occur faster if the wound is left in an open condition. If it is wrapped, the wound will be damp and will not dry out quickly. According to the participants, the wound care method used resulted in good wound healing without any complications. The time needed for wound healing depends on the extent and depth of the wound. Participants say that wounds with an area of 1-3 cm can heal within 3-7 days, and one participant with deep wounds (> 0.5 cm) to the muscle and more than 10 cm has completely healed to normal function within one year.

CONCLUSION

Tengger culture-based wound treatment uses whatever it is in nature to stop the bleeding in the initial phase and increase the wound healing process in the recovery phase.

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