Social Science and Humanities Journal
Everant Journal
ISSN: 2456-2653
https://sshjournal.com/
Impact Factor: 2024: 6.576
2023: 5.731
Volume 09 Issue 06 Jun 2025
DOI: https://doi.org/10.18535/sshj.v9i06.1897

The Determinants of Traditional Medicine Use in Morocco to Treat Sick Infants

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Received 04-05-2025
Revised 28-05-2025
Accepted 05-06-2025
Published 24-06-2025

Abstract:

Aim of the study: The aim of this study is to investigate the determinants of traditional medicine use in Morocco to treat sick infants.

Materials and methods: This is a prospective descriptive quantitative study conducted over a 12-month period from February 2023 to February 2024, in the various Moroccan regions.

Results: By surveying 520 parents/Tutors, this work retained the following dependent variable: "having ever used traditional medicine to treat their infants" to conduct univariate and multivariate logistic regression analyses. The final model reports that rural origin (OR: 3.58, 95% CI (1.65-6, 08), P =0.036), income less than 4000 dh (OR: 2.86, 95% CI (1.06-4, 74), P =0.03), AMO health coverage (OR: 3.92, 95% CI (1.84-5, 19), P =0.02), parents'/Tutors' trust in traditional medicine (OR: 2.73, 95% CI (1.35-4.93), P =0.04), parents'/Tutors' trust in traditional healers (OR: 2.24, 95% CI (1.41-6.39), P =0.03), religious beliefs (OR: 2.68, 95% CI (1.86-6.54), P =0.031), interpersonal relationships (OR: 2.37, 95% CI (1.52-6.04), P =0.02), accessibility of traditional medicines (OR: 2.41, 95% CI (1.36-5.4), P =0.05), social accessibility OR: 2.28, 95% CI (1.18-4.71), P=0.01) and low cost of TM (OR: 2.63, 95% CI (1.03-5.80), P =0.02) were ten risk variables favoring parents/Tutors' use of traditional medicine to treat their infants. On the other hand, parents' level of university education (OR: 0.26, 95% CI (0.13-0.49), P =<0.001) and parents' liberal/civil servant status (OR: 0.31, 95% CI (0.18-0.63), P =<0.001) seemed not to encourage respondents to use traditional medicine.

Conclusion: Reducing the use of traditional medicine to treat sick infants is of great importance to counteract infant morbidity and mortality in Morocco. For this reason, it is essential to take account of the risk factors identified in this study when implementing urgent measures.

Key words: Determinants, traditional medicine, recourse, nourishments, patients.

Introduction

According to declarations by international bodies, immense progress has been made in recent decades in the health of children under the age of 5. Indeed, the mortality rate for this population fell by 59% between 1990 and 2019 [1]. Nevertheless, the situation remains unacceptable: according to current trends, some 48 million children under the age of 5 will die of preventable causes between 2020 and 2030, whereas most of them could be saved [1].

In 2023, 4.8 million children under the age of 5 died, two-thirds of them in the first two years of life. This mortality rate is particularly high in developing countries [2]. Indeed, as regards neonatal mortality, the latter record very high mortality rates compared with developed countries: 3 deaths per 1000 live births for developed countries versus 21 deaths per 1000 live births for developing countries [3].

This reality has prompted international organizations to take action to tackle the direct factors behind infant mortality. Nevertheless, despite these efforts, the situation in these countries remains problematic. Neonatal mortality continues to ravage a considerable number of newborns, for example, India records 25 deaths per 1000 live births, Liberia 63, Nigeri 67, and Mauritania 68 [3].

Morocco is no exception, for when it signed up to the Millennium Development Goals, the country pledged to reduce child mortality by two-thirds by 2015 and is now deploying an arsenal of actions aimed primarily at achieving this commitment. Nevertheless, mortality among children under 5 remains a real public health problem in Morocco. It is high, at 22.16 deaths per 1000 live births [4]. Moreover, with 18 deaths per 1000 live births, infant mortality

in Morocco continues to kill thousands of infants every year. This figure, in 2021, stood at 10,000 infants [5], with a wide disparity between rural and urban areas, with 21.6 and 14.9 per 1,000 live births respectively [6], the causes of which are essentially prematurity, neonatal asphyxia, birth trauma, pneumonia, congenital anomalies, diarrhea and infections including septicemia [7]. According to a few studies in the Maghreb, these factors can be exacerbated by other extra-health influences, mainly the use of traditional medicine and self-medication [8], especially since a retrospective study by the Moroccan Poison Control and Pharmacovigilance Centre over the period 1999-2008 showed that 44.6% of all cases of plant poisoning involved children [9].

Given that, in the absence of data on the human development index, infant mortality and morbidity are one of the most reliable indicators of a country's development [10], and that the study of the influence of sociological apprehension on health status constitutes a special research project, in that it focuses on conditions that are more often dismissed and denied by some healthcare providers [11], the aim of this study was to investigate the determinants of traditional medicine use to treat sick infants in Morocco.

Materials and Methods:

This is a prospective descriptive quantitative study conducted over a 12-month period from February 2023 to February 2024, involving 520 parents/tutors in the different Moroccan regions (the Rabat-Salé-Kénitra region, the Tangier-Tétouan-Al Hoceïma region and the Souss Massa region). Through direct contact with the families of infants, or through contact with parents/ tutors at vaccination appointments.

3.1 Inclusion criteria

Parents or tutors with infants living in the three regions included in this study were included, and parents or tutors who gave their consent for participation in this study.

3.2 Exclusion criteria

Parents or tutors with infants who refused to participate in the study were excluded. Parents or tutors living in regions not included in this study, Parents or g tutors whose child is older than 2 years. Parents or tutors of other nationalities, Parents or tutors who participated in the study tool test.

3.3 Collecting data

This study is tested using a mixed-method questionnaire pretested with six parents who met the inclusion criteria but were excluded from the study sample to avoid subsequent bias.

The data collected covered:

- Parents' socio-demographic characteristics.
- Perception and cultural use of traditional medicine.
- Perception and use of traditional medicine.

3.4 Ethical considerations

Informed consent was obtained from each parent/ tutor at the time of study entry. Participation in the study was free of charge, and confidentiality and anonymity were respected.

3.5 A few definitions

3.5.1 Traditional medicine: By traditional medicine, this work refers to all practices based on the theories, beliefs and experiences specific to Moroccan cultures, whether explicable or not, used to improve the health of sick infants or treat their illnesses.

3.5.2 Infant: the child's age varies between 28 days of birth and 24 months.

3.5.3 Cultural conviction: In this work, cultural conviction was studied by investigating parents' and family members' beliefs in the supernatural and myths, and how these beliefs influence their use of traditional medicine.

3.5.4 Interpersonal relationships: The interpersonal relationships studied in this work refer to the relationships built up within the family and the relationships forged with the social environment around the sick infant, and how they encourage the use or non-use of traditional medicine.

3.5.5 Social accessibility: In this study, this determinant refers to the social characteristics of traditional medicine sales outlets. Medicines are sold at low prices and in retail outlets on markets and in areas culturally controlled by the population.

3.6 Statistical analysis

The data collected were coded and subjected to computerized analysis using SPSS V20 software. Qualitative variables were expressed as percentages. Comparisons were made using the Pearson Chi2 test. P values below 0.05 were considered statistically significant. The significance of each determinant association was assessed using Odds Ratio (OR) values, with the 95% confidence interval (95% CI) calculated. In. Effect, the identification of the determinants of mental health, through the following dependent variable: "having suicidal ideas, plans, or attempts", was made by univariate and multivariate logistic regression analyses.

Results:

4.1 Sociodemographic characteristics of study participants

Of the 520 parents/ tutors surveyed, 34.23% were aged between 31 and 40 [and 29.62% under 20]. 78.65% of parents were married. The mothers' level of education was secondary in 25.19% and university in 23.08%. The fathers' level of education was secondary in 32.31% and primary in 26.73%. 44.23% of parents/ tutors came from rural areas. 38.65% of fathers and 38.08% of mothers were unemployed. The families of the infants, included in this study, were less than 4000 Dh in 53.27%/ and they lived in either slums or social housing or country house in 76.35%. Infants' household size was between 6 and 11 people in 50.96%. AMO provided health coverage for 70.58% of these households. (Table n°1)

Table 1: Socio-demographic characteristics of study participants

	Parents/Tutors of infants N = 520	
	Effective	**Percentage (%)**
Mother's age:		
< 20 years	154	29,62
[20- 30 years]	75	14,42
[31 - 40 years]	178	34,23
> 40 years	113	21,73
Family situation :		
Parents (one or two) deceased	43	8,27
Divorced parents	68	13,08
Married parents	409	78,65
Mother's level of education :		
Illiterate	74	14,23
Informal education	83	15,96
Primary	112	21,54
Secondary	131	25,19
University	120	23,08
Father's level of education		
Illiterate	58	11,15
Informal education	36	6,92
Primary	139	26,73
Secondary	168	32,31
University	119	22,88
Origin :		
Urban	162	31,15
Suburban	128	24,62
Rural	230	44,23
Function of father or tutors :		
No function	201	38,65
Liberal profession	156	30
Civil servant	128	24,62
Other	35	6,73
Mother's function :		
No function	198	38,08
Liberal profession	78	15
Civil servant	80	15,38
Other	164	31,54
Family income :		
Less than 4000 dh	277	53,27
4000 dh and 8000 dh	208	40
More than 8000 dh	35	6,73

Type of accommodation :		
Slums, social housing, country houses	397	76,35
Medium standing	89	17,12
High standing	34	6,53
Household size :		
1 to 5 people	210	40,38
6 to 11 people	265	50,96
More than 11 people	45	8,66
Sanitary coverage :		
AMO	367	70,58
CNOPS	10	1,92
CNSS	118	22,69
No cover	25	4,81

4.2 Perception and use of traditional medicine (TM)

Among the participants in this study, 68.46% had already used traditional medicine to treat their infants. The frequency of this recourse was always in 24.16%, often in 28.65% and rarely in 26.12% of cases. The combination of medical and traditional treatment for sick infants is often used by parents/tutors in 38.27% of cases. This is because 68.46% have confidence in this medicine and 57.88% in traditional healers. (Table 2)

Table 2: Perception and use of traditional medicine (TM)

	Parents/ Tutors of infants N = 520		
	Effective	**Percentage (%)**	
Using traditional medicine to treat their			
infants			
Yes	356		68,46
No	164		31,54
Frequency of use of traditional			
medicine			
Always	86		24,16
Often	102		28,65
sometimes	75		21,07
Rarely	93		26,12
Combining medical and traditional			
treatment for sick infants:			
Always	31		5,96
Often	199		38,27
sometimes	126		24,23
Rarely	00		0
Never	164		31,54
Parents'/tutors ' trust in TM:			
Yes	356		68,46
No	164		31,54
Parents'/ tutors ' trust in traditional			
healers:			

Yes	219		42,12
No	301		57,88
Effectiveness of TM in curing infants:			
Yes, very effective	255		49,04
Yes, not very effective	101		19,42
No is not effective	164		31,54
Decision to use traditional medicine:			
Mother	263		73,88
Father	19		5,34
Grandmothers (paternal/maternal)	51		14,33
Other family members	23		6,46

4.3 Determinants of the use of traditional medicine

Among the participants in this study, 74.04% said that cultural beliefs in favor of traditional medicine influenced parents'/tutors' decision to use it to treat their sick infants. 68.46% of respondents said that religious beliefs were a determinant of the use of traditional medicine. 58.65% of participants cited interpersonal relationships within the family and in the social environment as a determining factor in the use of traditional medicine to treat infants. The availability of traditional medicines, social accessibility and the low cost of traditional medicine influenced the use of this type of treatment in 60%, 68.46% and 68.46% of cases respectively. Geographical accessibility of healers, on the other hand, had no influence in 62.12% of cases. (Table 3)

Table 3: Determinants of the use of traditional medicine
Parents/ Tutors of infants N = 520

	Effective	**ercentage (%)**
Cultural belief in TM:		
Yes	385	74,04
No	135	25,96
Religious beliefs:		
Yes	356	68,46
No	164	31,54
Relatives' experience of TM:		
Yes	305	58,65
No	215	41,35
Interpersonal relations:		
Yes	354	68,08
No	166	31,92
Accessibility of traditional medicines:		
Yes	312	60
No	208	40
Geographical accessibility of		
healers :		
Yes	197	37,88
No	323	62,12

Social accessibility:		
Yes	356	68,46
No	164	31,54
Low TM cost:		
Yes	356	68,46
No	164	31,54

4.4 Determinants of risk and protection in the use of traditional medicine

The final model reports that rural origin (OR: 3.58, 95% CI (1.65-6, 08), P =0.036), income less than 4000 dh (OR: 2.86, 95% CI (1.06-4, 74), P =0.03), AMO health coverage (OR: 3.92, 95% CI (1.84-5, 19), P =0.02), parents'/tutors' trust in traditional medicine (OR: 2.73, 95% CI (1.35-4.93), P =0.04), parents'/ tutors' trust in traditional healers (OR: 2.24, 95% CI (1.41-6.39), P =0.03), religious beliefs (OR: 2.68, 95% CI (1.86-6.54), P =0.031), interpersonal relationships (OR: 2.37, 95% CI (1.52-6.04), P =0.02), accessibility of traditional medicines (OR: 2.41, 95% CI (1.36-5.4), P =0.05), social accessibility OR: 2.28, 95% CI (1.18-4.71), P=0.01) and low cost of TM (OR: 2.63, 95% CI (1.03-5.80), P =0.02) were ten risk variables favoring parents/tutors' use of traditional medicine to treat their infants. On the other hand, parents' level of university education (OR: 0.26, 95% CI (0.13-0.49), P =<0.001) and parents' liberal/civil servant status (OR: 0.31, 95% CI (0.18-0.63), P =<0.001) seemed not to encourage respondents to use traditional medicine. (Table 4).

Table 4: Determinants of risk and protection in the use of traditional medicine

	Parents/Tuteurs des nourrissons N = 520			
Determinants	**Crude OR (95% IC)**	**P**	**Adjusted OR (95% IC)**	**P**
Risk determinants				
Age [31 - 40]	2,08 (1,54-4,43)	0,03		
Rural origin	2,32 (1,78-7,12)	<0,01	3,58(1,65-6, 08)	**0,036**
Father without function	2,26(1,49-5,01)	0,03		
Mother without function	2,13 (1,14-5,1)	0,01		
Income less than 4000 dh	3,71 (1,81-7,05)	<0,001	2,86(1,06-4, 74)	**0,03**
Slums, social housing, country houses	2,34 (1,17-5,91)	0,04		
Health coverage AMO	2,81 (1,51-5,62)	<0,01	3,92(1,84-5, 19)	**0,02**
Parents'/ tutors' trust in TM	3,54 (1,63-7,45)	<0,001	2,73(1,35-4,93)	**0,04**
Parents'/ tutors' trust in traditional healers	3,36 (1,66-5,96)	<0,001	2,24 (1,41-6,39)	**0,03**
Religious beliefs	2,69 (1,67-5,64)	<0,01	2,68 (1,86-6,54)	**0,031**
Interpersonal relations	3,11 (1,52-7,01)	<0,001	2,37 (1,52-6,04)	**0,02**
Accessibility of traditional medicines	3,48 (1,31-6,47)	<0,001	2,41 (1,36-5,4)	**0,05**
Social accessibility	2,52 (1,19-6,12)	<0,001	2,28 (1,18-4,71)	**0,01**
Low TM cost	3,01 (1,36-8,1)	<0,001	2,63 (1,03-5,80)	**0,02**
Protective factors				
Married parents	0,35 (0,17-0,93)	0,04		
Parents' level university education	0,23 (0,12-0,47)	<0,001	0,26 (0,13-0,49)	**<0,001**
Liberal/civil servant parents' function	0,17 (0,08-0,53)	<0,001	0,31 (0,18-0,63)	**<0,001**
Income of 4,000 dirhams and above	0,23 (0,11-0,86)	0,01		

Discussion:

With the aim of studying the determinants of the use of traditional medicine to treat sick infants in Morocco, this study found that out of 520 parents/ tutors surveyed, 68.46% had already used traditional medicine to treat their infants. Univariate and multivariate logistic regression analyses showed that, of all the variables considered in this study, ten were risk factors encouraging the use of this type of practice, and only two were protective factors.

Among the risk variables favoring parents'/tutors' use of traditional medicine to treat their infants, this study found rural origin (OR: 3.58, 95% CI (1.65-6.08), P =0.036). This result confirms the findings of several previous studies, notably those by Bloom et al[12], Derita et al [13] and Haque et al [14] . According to these studies, rural populations throughout the world have resorted to informal therapeutic treatments based on plants, their extracts and natural active ingredients, with the aim of curing and alleviating illnesses. According to this work, sick people in rural areas turn to healers who perform religious rituals using verses from sacred books to heal, which requires a profound belief on the part of patients for the treatment to work. In this study, AMO medical coverage was found to be a risk variable for the use of traditional medicine (OR: 3.92, 95% CI (1.84-5.19), P =0.02). Contradicting the results of studies that found no association between the types of insurance adopted and the use of traditional medicine to cope with illness. Notably, Gyasi's study of the association between health insurance status and pattern of use of traditional medicine in Ghana [15].

In this study, parents'/ tutors' trust in traditional medicine (OR: 2.73, 95% CI (1.35-4.93), P =0.04) and parents'/ tutors' trust in traditional healers (OR: 2.24, 95% CI (1.41-6.39), P =0.03) were two risk variables that favored respondents' use of this type of medicine to treat their sick infants. This contradicts the findings of Zaid's study, which found that recourse to TM was not based solely on trust and personal conviction, but was certainly linked to other factors, and that sometimes recourse took place even if the woman did not trust traditional practitioners [16].

religious beliefs (OR: 2.68, 95% CI (1.86-6.54), P =0.031) and interpersonal relationships (OR: 2.37, 95% CI (1.52-6.04), P =0.02) were identified in this study as two risk variables for the use of traditional medicine. This corroborates the results of studies by Whitney [17]. and Agnieszka [18]. According to these two studies, religion and social beliefs have a constant influence on the social structures that frame the use of traditional medicine. In fact, religion and shared traditional beliefs are the main systems underpinning the use of traditional medicine as it is today.

accessibility of traditional medicines (OR: 2.41, 95% CI (1.36-5.4), P =0.05), and social accessibility (OR: 2.28, 95% CI (1.18-4.71), P =0.01) were risk variables for parents/ tutors' use of traditional medicine to treat their infants. Confirming the results of the study by Bouadi et al. the latter found that among the factors associated with the use of traditional medicine by people aged 60 and over, the availability of traditional medicines in the vicinity should be mentioned. For them, the availability of traditional medicines comprises at least three main components: physical presence, temporal availability and provision of services adapted in volume and kind to needs [19].

The low cost of traditional medicine (OR: 2.63, 95% CI (1.03-5.80), P =0.02) was also found to be a risk variable for the use of this type of medicine. This corroborates the results of Rostant's study, which found that households who value traditional health care one thousand times less expensive and effective than modern health care. According to their results, this is one of the reasons why respondents prefer to consult traditional practitioners in the event of a health problem [20].

In this study, the level of university education is a variable that does not encourage parents/ tutors to use traditional medicine to treat their infants. This confirms the results of the study by Fari Elfirdaous et al, who found that 88% of respondents who had used traditional medicine at least once before

starting conventional treatment had a level of education no higher than the baccalaureate [21]. These results contradict the work of Logiel et al [22], who reported that respondents with a higher level of education used traditional medicine more or made greater use of it.

In addition, the position of the parents as liberals or civil servants (OR: 0.31, 95% CI (0.18- 0.63), P =<0.001) is a protective variable against the use of traditional medicine, according to the results of this study. This finding contradicts the results of the study by Logiel et al [22]. According to the results of the latter, respondents with a job were positively associated with increased use of traditional medicine.

Conclusion:

Improving the health of Moroccan infants requires an integrated, multi-pronged approach to reduce their parents'/ tutors' reliance on informal traditional medicine. By implementing educational measures likely to remedy the risk variables put forward by the results of this work.

Acknowledgements

We would like to thank all the parents/tutors who took part in this study, as well as all the authors who read, critiqued and approved this article.

Conflicts of interest

None.

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