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Consumer Perceptions of Noni Juice Health Benefits during a 90-Day In-Home Use Test

Brett J. West

Research and Development Department, Partner.co, American Fork, Utah, USA
Email: Brett.West@partner.co

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Abstract

Noni juice, made from the fruit of *Morinda citrifolia*, is a health-promoting food from the Pacific Islands with an extensive history of traditional use. Human clinical trials have revealed that noni juice has antioxidant, immunomodulatory and anti-inflammatory properties. Previously, regular noni juice consumers in Europe and traditional healers in Fiji were surveyed to identify potential noni juice health benefits. But to better understand the perception of its health benefits among those with no previous experience with noni juice, an in-home study was conducted in the United States. Three hundred and nineteen adults with untreated chronic health conditions were provided with a 90-day supply of a blinded (unlabeled) commercial noni juice product (Tahitian Noni® Juice), instructed to consume 4 fluid ounces (1/2 cup) each day, and responded to a questionnaire given on days 30, 60 and 90 to evaluate product appeal and perceived effectiveness. A total of 299 people (94%) felt that their health improved in some way after drinking TNJ for 90 days. More than 80% of the subjects reported feeling better or healthier in general. Most participants also concurred with more than two dozen additional positive health perception statements, especially on days 60 and 90. More than 70% of consumers also indicated that noni juice helped them feel better than other wellness supplements they had tried in the past, including other so-called "super fruit" products. These findings seem to corroborate the results of clinical trials and previous consumer surveys regarding the potential for noni juice to provide discernable health benefits when used consistently over time. Such findings may help guide additional placebo-controlled clinical trials in which specific effects may be evaluated more rigorously.

Keywords

Morinda citrifolia, Noni Juice, In-Home Use Test, Consumer Perception, Perceived Health Benefits

1. Introduction

Noni is the common name for *Morinda citrifolia*, a small to medium sized tropical tree that produces fruit year-round [1]. This fruit has been prized for many generations among Pacific Islanders for its health-promoting properties [2]. In the past 26 years, noni juice has been sold in many locations around the world. Even so, public knowledge of noni juice is still very limited.

Some of the potential health benefits of noni juice have been evaluated in human clinical trials [3]. The trials have specifically evaluated one commercial source, Tahitian Noni® Juice (TNJ), which is made with noni fruit from French Polynesia. There is a variety of traditional uses of noni juice. Likewise, the apparent health benefits revealed in clinical trials are manifold. These benefits include protection of DNA from tobacco smoke damage, maintenance of healthy blood lipid levels, controlling homocysteine and inhibiting systemic inflammation. Further, clinical trial results indicate that TNJ may improve joint health, increase physical endurance, increase immune activity, inhibit glycation of proteins, aid weight management, maintain bone health in women, help maintain normal blood pressure and improve gum health (See **Table 1**).

Local traditional perceptions of noni juice's impact on health are very insightful. French Polynesian farmers describe noni juice as being useful in boosting immunity (Cadousteau Fabrice, personal communication March 2022, Taravao, Tahiti), for maintaining healthy cholesterol levels (Dorothea Scharer, personal communication, March 2022, Mataea, Tahiti) and as an overall health tonic (Poema Moutame, personal communication, March 2022, Taputapuatea, Raiatea). A nationwide qualitative survey of the uses of noni by Fijian healers was also completed [22]. Five of the most frequently reported conditions that Fijians believe noni will improve are joint pain and swelling, muscle pain, headache, backache, blood pressure and body strength.

Two surveys were conducted among European TNJ consumers [23]. Among these people, increased energy, improved well-being, reduction of pain, fewer infections, improved sleep, improved digestion, reduction in allergy and asthma symptoms were the most frequently experienced health benefits. But these consumers would have been introduced to noni juice by a network of those familiar with traditional Pacific Islander perceptions of noni juice as well as the experiences shared by many other consumers. These shared experiences and pre-existing opinions can have an influence on the perceived outcomes of new noni juice consumers. Considering this, the current study was initiated with the purpose of identify what the health benefits might be among those who were not previously familiar with noni juice. Additionally, the study results could be used to direct the focus of future placebo-controlled studies.

2. Materials and Methods

The European Union-approved Tahitian Noni® Juice (TNJ) was used for this trial as it has been thoroughly evaluated and determined to be a safe novel food

Table 1. Descriptions of some of the clinical trials involving Tahitian Noni® Juice (TNJ).

Trial design	Volunteers	Main outcomes
Double blind, placebo-controlled clinical safety trial [4]	Healthy adults	No dose-related adverse events or negative effects on clinical chemistry and hematological measurements, urinalysis, electrocardiogram, blood pressure, heart rate, or body weight. Fewer adverse events than placebo group.
Double blind, placebo-controlled clinical trial [5]	Heavy cigarette smokers (>20 cigarettes/day)	26.9% - 30.8% reduction in mean plasma superoxide anion radicals ($P < 0.001$) and 24.5% - 27.3% mean reduction in plasma lipid hydroperoxides ($P < 0.001$).
Clinical trial, no placebo comparator reported [6]	Heavy cigarette smokers (>20 cigarettes/day)	44.9% average reduction in aromatic DNA adducts in peripheral blood lymphocytes ($P < 0.001$).
Double blind, placebo-controlled clinical trial [7]	Heavy cigarette smokers (>20 cigarettes/day)	20.3% - 25.6% reduction in mean total cholesterol ($P < 0.05$), 29.4% - 41.2% reduction in mean triglycerides ($P < 0.05$), 15.2% reduction in mean hs-CRP ($P < 0.001$), and 23.9% reduction in mean homocysteine ($P < 0.05$). Mean HDL increased from 49 to 57 mg/dL ($P < 0.05$).
Double blind, placebo-controlled clinical trial [8]	Heavy cigarette smokers (>20 cigarettes/day)	44.6% - 57.4% reduction in lipid peroxidation-derived DNA adducts in peripheral blood lymphocytes ($P < 0.001$).
Open-label clinical trial [9]	Adult (>40 years age) non-smokers with normal to mildly elevated cholesterol	No significant difference between pre- and post-trial total cholesterol, HDL or LDL levels.
Open-label, conventional treatment-controlled clinical trial [10]	Cervical spondylosis patients	60% of patients in noni group experienced pain relief and improvement in range of motion. Efficacy rate was not significantly different from conventional treatment ($P > 0.05$)
Open-label clinical trial [11]	Osteoarthritis patients	23.7% reduction in frequency (in days) of severe pain ($P < 0.05$) and 16.4% decrease in pain severity ($P < 0.05$). Improved psychological state and mood and improved mobility ($P < 0.001$).
Placebo-controlled clinical trial [12]	Highly trained athletes (middle and long-distance runners)	21% increase in mean time-to-fatigue ($P < 0.05$). 25% decrease in mean blood chemiluminescence/oxidation ($P < 0.05$).
Placebo-controlled clinical trial [13]	University athletes	Significant reduction in mean serum creatine kinase (from 209.8 to 148.1 IU/L, $P = 0.001$) after time-to-fatigue tests.
Double blind, placebo-controlled clinical trial [14]	Semi-professional cyclists	Increases in oxygen uptake at 50-Watt workload (from 15.2 to 17.4 mL/kg/min, $P = 0.005$) and VO2 max (from 51.5 to 55.0 mL/kg/min, $P = 0.009$)
Open-label clinical trial [15]	Healthy adults	Mean serum malondialdehyde levels declined from 4.81 to 3.90 nmol/mL ($P < 0.01$), mean serum IL-2 increased from 52.5 to 69.2 pg/mL ($P < 0.05$) and mean natural killer cell activity increased from 27.7% to 36.0% ($P < 0.05$).

Continued

Open-label trial [16]	Overweight or obese adults with grade 1 hypertension and impaired fasting glucose	Decrease in mean skin autofluorescence units, a measurement of advanced glycation end products, from 1.89 to 1.77 units ($P < 0.05$).
Open-label trial [17]	Adults with a body mass index greater than 25	Every participant in the trial experienced weight loss. Mean percent body fat decreased by 8.91% ($P < 0.0001$). Noni juice combined with other interventions.
Open-label prospective clinical trial in 3 parallel groups [18]	Obese adults (grade 3)	After 6 weeks of calorie restriction, the average loss of lean muscle mass was 3.1% - 4.1% in the two noni groups, whereas it was 8.5% in the control group ($P = 0.0051$). Maintenance of weight loss throughout the 6-week period was greater in the noni groups than in the calorie restriction only group.
Placebo-controlled clinical trial [19]	Post-menopausal women	Improved mental health score in SF-36 clinical survey ($P = 0.05$). Trend of slight increase in mean urinary deoxypyridinoline concentration. Attenuated hearing loss at 8000 Hz compared to the placebo group ($P = 0.05$).
Open-label clinical trial [20]	Hypertensive adults	Systolic blood pressure (BP) was reduced in all participants. Diastolic BP was reduced in nine participants. Mean systolic and diastolic BPs were reduced from 144 to 132 and from 83 to 76, respectively.
Open-label clinical trial with an untreated control group [21]	Adults with moderate to severe gingivitis/periodontitis	Decline in mean papillae bleeding index (from 2.25 to 1.01) was significantly greater than that of the control group ($P = 0.01$).

[24]. This is also the same source that was evaluated in the clinical trials summarized in **Table 1** and in the European consumer surveys. One-liter unlabeled (blinded) bottles of TNJ were provided to participants, enough to provide a 90-day supply.

Participants (both male and female, ages 24 to 61 years) were recruited from 44 states and Washington DC, covering all regions of the United States except for Alaska and overseas territories. Potential participants were identified using consumer product research databases. Those selected for enrollment in the study had one or more of the following chronic conditions but were not currently receiving treatment or medication: diabetes, arthritis, autoimmune or other inflammatory condition, chronic fatigue, migraine or other chronic headaches, joint pain, painful skin condition (*i.e.* psoriasis, eczema, etc.), back pain, digestive problems, depression or anxiety, respiratory problems, cardiovascular disease, hypertension, elevated blood sugar, overweight, elevated triglycerides and/or cholesterol, severe/debilitating muscle pain (such as fibromyalgia or other pain-related condition). Those suffering from kidney disease or failure, had allergies to fruits, were currently under a physician's care or taking prescriptions were excluded from the study. Participants who were also unable, during the 90-day trial, to avoid use of prescription medication, over-the-counter-medication,

or a medical procedure were excluded from the study. Only subjects who were able to understand their role in the study and were able to provide written informed consent were included. This study was conducted in compliance with the US Code of Federal Regulations Title 21, Part 50 (informed consent of human subjects).

All enrolled subjects were instructed to consume 4 fluid ounces (1/2 cup) of noni juice each day. They were also instructed to respond to an online questionnaire on day 30, 60 and 90 of the study. The survey was programmed so that each subject evaluated self-perceived health-status statements using a four-point matrix of agreement (*i.e.*, "Strongly Agree", "Agree", "Disagree" or "Strongly Disagree"). Other questions were answerable with either "yes" or "no", a five-point numerical scale or four-point "likely to" scale. Health status statements and questions were formulated to allow better detection of perceived changes in general health status by using language that would be easy to understand by all participants.

Responses and demographic data recorded for each participant were collected from the online questionnaire database and tabulated in a spreadsheet for subsequent statistical analyses. Summary statistics were calculated, and paired T-test conducted to compare pre- and post-trial means, where appropriate. Fisher's exact test was also used to compare the rate of positive responses (agreement) among different age groupings of participants.

3. Results and Discussion

Three hundred nineteen people completed the 90-day trial. Most participants (n = 252) were female. The average age (±standard deviation) of the participants was 37.7 ± 9.5 years. Most of these people (58%) reported that they had never used a wellness supplement previously. Only 18.5% of the participants reported that they had ever consumed any super-fruit products for the purpose of bettering their health. As such, the group recruited for this study appears to have been somewhat unfamiliar with wellness supplements (dietary supplements) and largely unfamiliar with super-fruit products.

Most participants reported experiencing at least one improvement in health during the 90-day trial. Each was presented with two questions asking them to rate their overall health on a scale of 1 to 10, with 1 being very poor and 10 being excellent, before the study and after drinking TNJ for 90 days. Two hundred forty-three subjects (approximately 76%) reported higher health scores at the end of the study than at the start. Average (±standard deviation) overall health scores rose from 6.3 ± 1.5 to 7.8 ± 1.3 ($P < 0.001$), see Figure 1.

The above results are consistent with the combined percentage of "Agree" and "Strongly Agree" responses given on day 90 to the statements, "I feel better in general" (83%) and "I feel healthier than before using this product" (81%), see Table 2. There was no significant difference in how women and men scored their overall health before the trial. But men reported slightly better overall

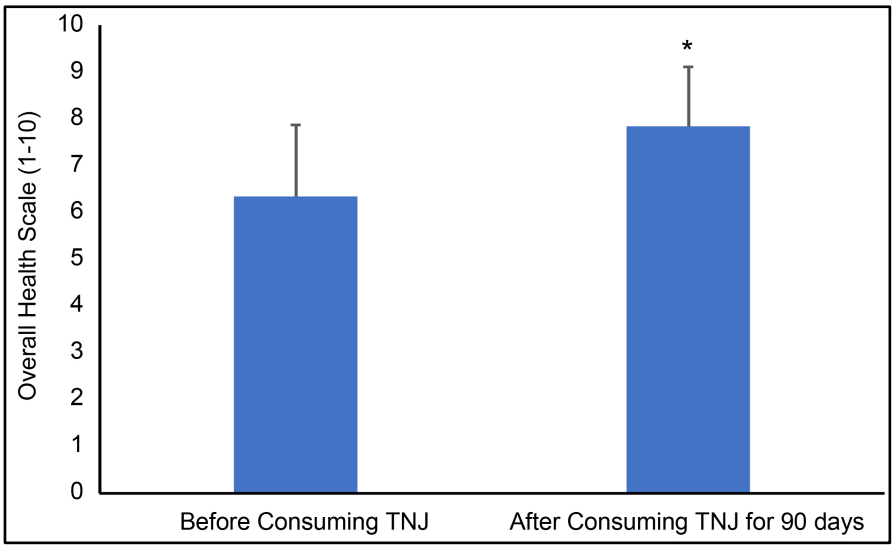

Figure 1. Self-perceived overall health, as rated on a scale of 1 (very poor) to 10 (excellent) before and after drinking TNJ (4 fluid ounces) for 90 days. *P < 0.001.

health than women after drinking TNJ for 90 days, with an average (±standard deviation) score of 8.1 ± 1.1 vs. 7.7 ± 1.3 (P < 0.05). Even so, both groups experienced more than a 22% increase in overall health scores.

The additional results that are summarized in **Table 2** provide more insight into the type of health benefits the subjects felt they experienced and by what day this occurred. A total of 299 people (94%) felt that their health improved after drinking TNJ for 90 days. Most volunteers felt that they experienced several improvements in different aspects of their health within 30 days of drinking TNJ. More than 75% of the people in this trial agreed or strongly agreed that they had more vitality, accomplished more in their daily life, had more energy, had more physical stamina, bounced back more quickly after workouts, felt more balanced and felt their health had improved. 70% of participants reported an improvement in their mood and woke up in the morning ready to start their day after 90 days of consuming TNJ. In all these areas of health, most people noticed improvements within 30 days. A small number noticed improvements only by day 60 or day 90, which accounts for the slight increases in the percentages of those agreeing with the health perception statements over time. Obvious increases in the percentage of people perceiving improvements over time are associated with overall health and the ability to accomplishing more in daily life. The percentage of those experiencing improved overall health increased by 10% from day 30 to day 60. The percentage of those who felt that they could accomplish more in their day also increased 10% from day 30 to day 60. This increased by an additional 8% by the end of the trial on day 90. A very similar trend was observed in the percentage of those who reported an improvement in their stamina during exercise. In fact, there were day 30 to day 60 increases in the percentages of agreement with all but one statement. But that statement was more related to ease of use than improvement in health. Increases in percentages of agreement

Table 2. Combined percentages of "Agree" and "Strongly Agree" responses to health perception statements after 30, 60 and 90 days of drinking TNJ.

	Percent agreement		
Health perception statement	Day 30	Day 60	Day 90
I feel better in general	73	83	83
This health supplement drink has become an important part of my daily wellness routine	77	80	82
I feel healthier than before using this product	68	77	81
I feel like I have more vitality	67	74	77
I feel like I'm accomplishing more in my daily life	59	69	77
I feel more in control of my health since using this product	68	75	77
My health has improved since I've used this product	64	75	77
I feel like I bounce back more easily after my workouts	65	71	76
I feel more balanced since using this product	71	75	76
I feel like I have more energy since using this product	71	73	75
When I exercise, I feel like I have more stamina	59	69	75
My muscles feel like they recover more quickly after a workout	63	68	72
I feel like I wake up ready to start my day	65	69	70
My mood has improved since using this product	64	70	70
I'm experiencing less pain in general since using this product	55	67	69
I feel like I'm stronger	51	64	68
I feel more comfortable exercising since using this product	57	68	68
I feel like I have fewer headaches since using this product	55	61	68
I look forward to my daily dose of this health supplement drink	65	64	68
I have fewer health challenges since using this product	55	63	67
I feel like I want to exercise more than I used to	50	60	66
I am sleeping better at night	57	62	62
I feel less stressed since using this product	48	58	62
I enjoy exercising more than before	48	58	62
I feel less anxiety since using this product	52	59	59
Drinking this supplement drink is a great way to practice self-care	86	88	87
Drinking this health supplement drink is an easy way to take care of my health	86	85	85

were also evident in all but a small number of statements from day 60 to day 90. This indicates that while most people can expect to benefit within the first 30 days of drinking TNJ, there will be a smaller fraction of people who may require an additional month or two before they perceive that their health has improved.

To assess the acceptance of the flavor of the product, participants were pre-

sented with the statement, "This product tastes great." The percentages of those agreeing or strongly agreeing with this were 35%, 40% and 45% on days 30, 60 and 90, respectively. Noni juice is known to have a largely unappealing flavor due to the presence of certain medium chain fatty acids, among other things [25]. These fatty acids impart a pungent aroma to noni fruit. The impact of these fatty acids on consumer acceptability is evident in the low positive response rate to the flavor. It does appear however, that the level of tolerance did increase with continued use, as there was a 10% increase in the number of people with a positive opinion of the flavor by the end of the trial. Even so, those who felt the flavor was enjoyable remained in the minority. This is likely due to the somewhat pungent flavor of noni fruit.

Figure 2 provides examples of the number participants responding ateach level of agreement among four representative health perception statements. These statements relate to feeling healthier, having more energy, better mood

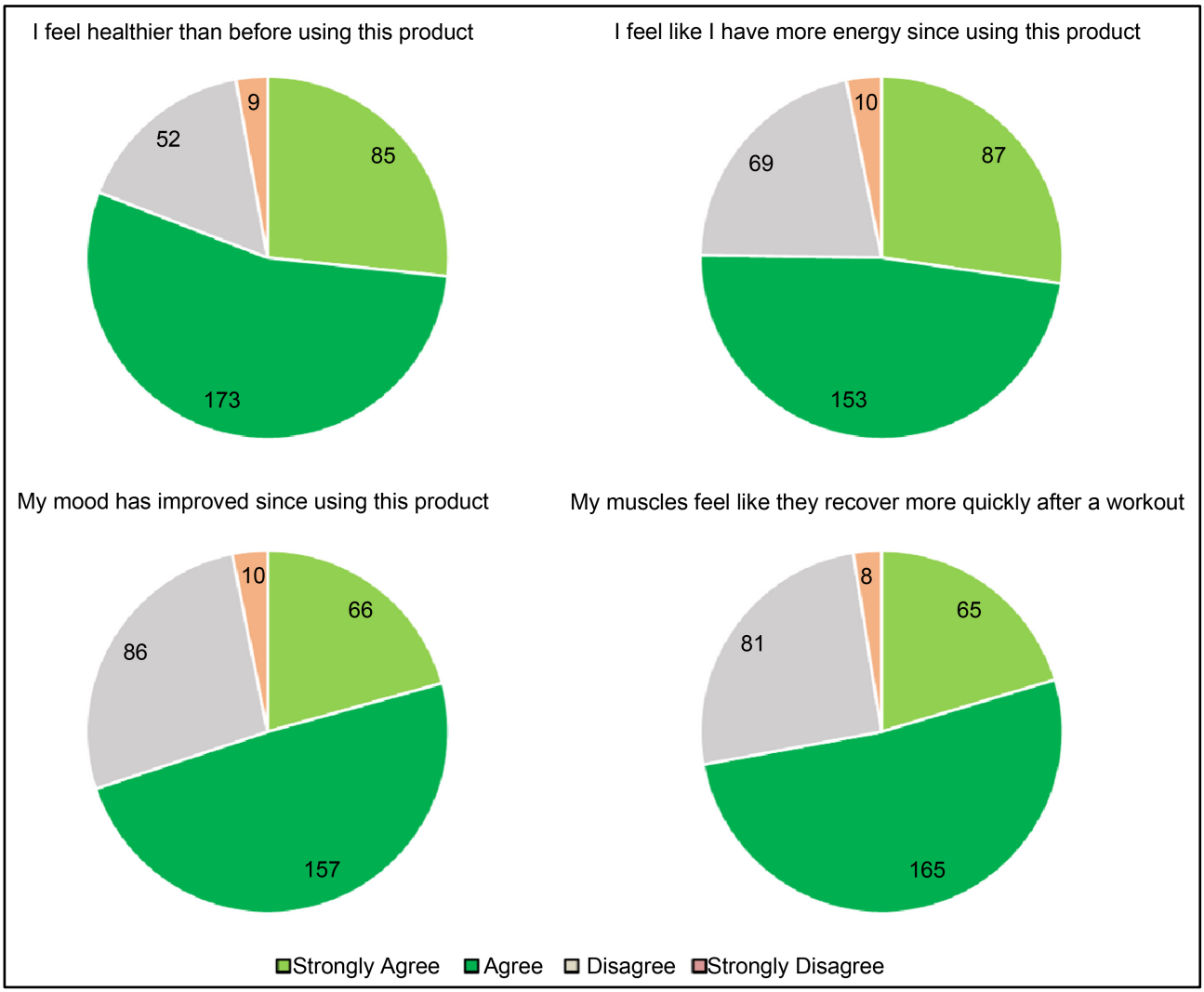

Figure 2. Representative distributions of responses for each level of agreement with health perception statements after drinking TNJ for 90 days.

and improved recovery after exercise. Roughly half the people in this study simply agreed with the statements. There were large numbers, one-fifth to one-quarter of participants, who also strongly agreed with the statements. The number of people who simply disagreed was similar to the number who strongly agreed, while those who strongly disagreed were a very small amount. As such, the perceptions of the participants in this study were distributed more towards noni juice having a positive effect on their health.

Responses by age group are summarized in Table 3. In general, the rate of agreement with the health perception statements was very similar across all age groups, with no statistical difference between them. The exception is the difference in agreement with the statement, "I feel like I want to exercise more than I used to," where 20% fewer people in the 45 - 54 age range than in the 35 - 44 age range ($P < 0.05$). There were no other statistically significant intergroup differences in the numbers of those agreeing with the statements ($P \geq 0.07$). The proportion of each age group that reported feeling better in general differed by no more than three percent. With the follow up statement, "My health has improved since I've used this product," the 45 - 54 age group appears to agree less than the youngest and oldest age groups (70% vs. 79% and 81%, respectively). However, this is not statistically significant. What can be seen from these values is that a very clear majority of people felt that their health improved after drinking TNJ for three months, regardless of age. This is also true with all the other health perception statements evaluated in this trial.

In response to the question, "On a scale of 1 - 5, with 1 being Not Happy and 5 being Very Happy, how happy are you with the results from drinking this health supplement juice for the past 90 days?", the average score (±standard deviation) was 3.9 ± 1.1. The average score was 3.7 ± 1.2 for replies to the question, "On a scale of 1 - 5, with 1 being Not Effective and 5 being Very Effective, how effective was this product at meeting your health concerns?" The distribution of values in reply to this latter question was dominated by higher scores. A total of 100 participants gave a score of 5, or Very Effective, with 104 giving a score of 4. These account for approximately 64% of the replies. Only 27 participants provided a score of 1, or Not Effective. The remaining 88 provided scores of either 2 ($n = 27$) or 3 ($n = 61$). The percentage of scores greater than 2 was approximately 83%. This aligns with the number of participants who agreed that they felt better after drinking TNJ. Among the four age groupings of participants (24 - 34, 35 - 44, 45 - 54 and 55 - 61 years), the average score ranged from 3.6 to 4, with no statistically significant difference between these groups.

With participants who had indicated a history of wellness supplement use, an additional statement was presented in which they were asked to indicate their level of agreement. The statement was, "Of those who have used wellness supplements in the past, this product makes me feel better than other wellness supplements I have tried." The percentages of those who Strongly Agreed or Agreed on days 30, 60, 90 were 62%, 71% and 74%, respectively. A very similar statement

Table 3. Combined percentages of "Agree" and "Strongly Agree" responses to health perception statements in four age groupings: 24 - 34 years (n = 149); 35 - 44 years (n = 102); 45 - 54 years (n = 37); 55 - 61 years (n = 31).

	Percent agreement by age group (years)			
Health perception statement	24 - 34	35 - 44	45 - 54	55 - 61
I feel better in general	83	82	81	84
This health supplement drink has become an important part of my daily wellness routine	82	79	84	84
I feel healthier than before using this product	84	77	76	84
I feel like I have more vitality	78	74	78	81
I feel like I'm accomplishing more in my daily life	77	76	73	81
I feel more in control of my health since using this product	79	75	70	77
My health has improved since I've used this product	79	75	70	81
I feel like I bounce back more easily after my workouts	76	75	73	84
I feel more balanced since using this product	78	75	73	71
I feel like I have more energy since using this product	77	75	70	74
When I exercise, I feel like I have more stamina	76	72	70	84
I feel like I wake up ready to start my day	68	71	68	81
My mood has improved since using this product	72	69	65	68
I'm experiencing less pain in general since using this product	70	66	73	68
I feel like I'm stronger	70	62	68	77
I feel more comfortable exercising since using this product	66	70	68	71
I feel like I have fewer headaches since using this product	68	67	65	77
I look forward to my daily dose of this health supplement drink	66	65	73	77
I have fewer health challenges since using this product	68	63	68	71
I feel like I want to exercise more than I used to	67	71	51*	61
I am sleeping better at night	58	66	62	74
I feel less stressed since using this product	61	59	68	74
I enjoy exercising more than before	63	60	57	65
I feel less anxiety since using this product	58	52	68	71
Drinking this health supplement drink is an easy way to take care of my health	87	82	92	77
Drinking this supplement drink is a great way to practice self-care	87	85	92	81

*$P < 0.05$ when compared to 35 - 44-year-old group.

regarding TNJ working better than other super-fruit products was also presented to those with relevant histories. The percentage of participants who strongly agreed with this statement on days 30, 60, and 90 were 74%, 75% and 71%, respectively.

Overall, it appears that the impact of TNJ on general health is its most noticeable benefit. Also, the ease of use and its importance in a daily health routine are

also significant aspects of the participants' perception of TNJ. The results of this current study agree well with the two previous studies discussed above. In Fiji, as is the case in other tropical locales, noni juice is well known for its pain-reducing properties. The nationwide qualitative survey conducted in Fiji found that among all the various health conditions reportedly improved by noni, approximately 22% are related to pain [4]. Among European consumers, reduction of peripheral pain was the third most frequently reported health benefit of noni juice [5]. In this home-use test, more than half of the people (55%) felt that they experienced less pain in general and had fewer headaches within 30 days of drinking TNJ. The percentages increased to 69% (less pain) and 68% (fewer headaches) by the end of the trial. These results corroborate the earlier surveys but do so among people that were unfamiliar with noni juice. The findings are also in agreement with at least two of the human clinical trials summarized in Table 1, wherein reduced pain was experienced by osteoarthritis and cervical spondylosis patients that drank TNJ [12] [13].

In the two previous European surveys, the two most frequently reported health benefits of TNJ were "more energy" and "better overall feeling". This agrees with the results of this study wherein improved overall health was the foremost perceived benefit, with the related statements "I feel better in general" and "I feel healthier than before using this product" being among those with the highest percentages of participant agreement. Additionally, there was 77% agreement with all three energy-related statements—"I feel like I have more energy since using this product," "I feel like I have more vitality" and "I feel like I'm accomplishing more in my daily life." Also in Europe, improved sleep was reported by just over 8% of respondents. In this trial 62% agreed with the statement "I am sleeping better at night." The perceived sleep benefit appeared to be experienced with much more frequency among those in the current trial than among the European consumers of previous years. A possible reason for this could be that the European survey included the more open-ended question, "What was the reason for taking noni?" With these European consumers addressing very specific health benefits, they may not have considered and reported ancillary effects, such as sleep. This could have possibly led to under reporting of secondary health benefits.

In Fiji, improved body strength is one of the five most frequently reported benefits of noni. In this trial, 68% agreed with the statement "I feel like I'm stronger" after drinking TNJ for 90 days, with 51% reportedly experiencing an increase in strength within 30 days. Further, 75% agreed with the statement, "When I exercise, I feel like I have more stamina." Also, 72% agreed with, "My muscles feel like they recover more quickly after a workout." The ergogenic properties of noni juice have been demonstrated previously. As briefly described in Table 1, at least three clinical trials have been completed with athletes. Middle and long-distance runners who drank TNJ experienced a 21% increase in average time-to-fatigue, as compared to a placebo group, when measured by a treadmill run with increasing workload (stepwise every min) until muscle fati-

gue. This effect was accompanied by a notable increase in blood antioxidant status [14]. Very similar results were seen in a second trial involving university athletes, but with the added observation that serum creatine kinase levels (a marker for muscle damage) were lower in TNJ drinkers, as compared to a placebo group [15]. Noni juice's ability to curb muscle damage may help explain why most people in the current study felt their muscles recovered more quickly after a workout. Another explanation as to why most participants felt they had more stamina and felt stronger may be due to improved oxygen utilization. Semi-professional cyclists who drank TNJ had increases in their oxygen uptake at a 50-Watt workload as well as in their VO2 max [16]. It is of interest to note that Polynesians ingested noni fruit to combat fatigue on long ocean voyages and fishing trips [26]. A clinical trial found that postmenopausal women who drank TNJ improved in their global Physical Component Scores in the Short Form 36 (SF-36) quality-of-life survey. These scores included physical function and role-physical subscales that measure the ability to participate in both moderate activities (*i.e.*, walking) and vigorous activities, such as running and strenuous sports [21]. It seems that TNJ's effects on overall health and fitness, as observed in clinical trials, is also noticeable in everyday settings.

4. Conclusion

Consumer perception of noni juice, specifically TNJ, was very positive when presented with statements regarding its effect on health. The perceived benefits in this study agree very well with those observed in human clinical trials. This suggests that health benefits can be experienced in multiple settings outside of the controlled conditions of clinical trials. This current study has also demonstrated that those who are unfamiliar with noni juice and its historical uses may also experience effects like those who are more influenced by traditional lore or sales and marketing promotion. This is, of course, very much in line with the outcomes of the placebo-controlled clinical trials of TNJ. Finally, the statement with the highest percentage of participant agreement (87%) was, "Drinking this supplement drink is a great way to practice self-care." Thus, TNJ was found by those in this study to be effective and convenient for maintaining their health. Considering this, additional human clinical trials are warranted and may be designed with guidance from the findings of this study.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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