Probiotic food supplement reduces stress-induced gastrointestinal symptoms in volunteers: a double-blind, placebo-controlled, randomized trial

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Abstract
Stress plays an important role in the development of symptoms contributing to disease. Stress induces various disorders with gastrointestinal, physical, and psychological symptoms. Probiotics can help regulate or modulate gastrointestinal functions. The aim of the present study was to investigate the effects of a probiotic preparation (Probio-Stick) on stress-induced symptoms in volunteers. A double-blind, placebo-controlled, randomized study was conducted on volunteers with symptoms of stress. Subjects received a probiotic (Probio-Stick; Lallemand SAS, Saint-Simon, France) containing \textit{Lactobacillus acidophilus} Rosell-52 and \textit{Bifidobacterium longum} Rosell-175 (3 × 10\textsuperscript{9} colony-forming units per sachet stick) or a sensorially identical placebo without probiotics during a 3-week period. The consumption of probiotics significantly reduced 2 stress-induced gastrointestinal symptoms (abdominal pain and nausea/vomiting) for intention-to-treat or per-protocol populations. In contrast, the probiotics did not significantly modify the other physical and psychological symptoms and sleep problems induced by stressful life events for intention-to-treat or per-protocol populations. The results indicate that Probio-Stick can provide a beneficial effect on the gastrointestinal symptoms experienced by individuals affected by chronic stress.

Keywords: Probiotics; Stress; Gastrointestinal symptoms; \textit{Lactobacillus}; \textit{Bifidobacterium}; Visceral pain; Humans

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