What does it mean to be healthy?

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Abstract

The concept of health has long been debated in philosophy and medicine, with discussions often centering on whether health is merely the absence of disease (negativism) or requires the presence of some positive state or ability (positivism). Empirical studies on the folk concept remain scarce and inconclusive. This paper investigates the folk concept of health through implication and contradiction tests. Our findings reveal that while people often infer that health entails both a disease-free state and lifestyle-related factors, interpretations of 'health' vary significantly depending on context, with participants associating health primarily with the absence of disease in medical settings while emphasizing lifestyle factors like diet and activity in personal training scenarios. These results suggest that the meaning of the folk concept of health is strongly context-dependent.

Keywords: folk concept of health; lifestyle positivism; philosophy of medicine; experimental philosophy

Introduction

What does it mean to be healthy? A variety of perspectives have been proposed (see, e.g., Murphy 2021; Kingma 2019), but two key questions often shape this debate: (1) Is health merely the absence of disease? and (2) Is health a value-laden or value-free concept? Regarding the first question, *negativism* proposes that health is merely the absence of disease (Boorse 1977; Wakefield 2014; Cooper 2002). In contrast, *positivism* challenges this notion. Some positivist accounts suggest that health involves a positive, phenomenologically rich state of being (Svenaeus 2000). On the second question, *naturalists* argue that health is a descriptive matter, linked to the normal functioning of bodily systems (Boorse 1977, 2014). *Normativists*, however, contend that what determines whether a condition is a disease is some evaluative content like being bad, harmful, or unwanted, or requiring medical intervention (e.g., Cooper 2002, 2020; Fulford 1989). According to normativists, being negative or disvalued belongs to the meaning of 'health'.

Although the traditional approach to these issues has been conceptual analysis (e.g., Schwartz 2017; Cooper 2020), scholars have begun integrating empirical methods (e.g., vignette studies, semantic feature production tasks, corpus analyzes) to advance discussions on the meaning of 'health' (Aftab 2021; De Block & Hens 2021; Faucher 2021; Hens & De Block 2023; Lemoine & Okholm, 2023; Machery 2023, Reuter et al. 2025). And yet, this empirical research is still fragmented, and the results do not clearly suggest an answer to either of the two questions.

This paper addresses the concept of health from a new methodological angle, trying to better understand how people talk about health and what inferences they draw upon hearing a sentence containing the term 'healthy'. To this end, we present four preregistered experimental studies: an implication and contradiction test without context, as well as an implication and contradiction test with a manipulation of contextual information. In Study 1, we identify the implications of the sentence "Alex is healthy." Whatever the meaning of the term 'healthy', we should expect this meaning to be reliably and strongly implied by this simple sentence. Study 2 helps us identify the term's meaning in contrast to mere conversational implicatures. Our results suggest that the folk concept of health is more complex than philosophers have suggested and may vary in meaning depending on context. We manipulate this context in Study 3 and Study 4 and provide evidence for the contextual nature of the folk concept of health.

Empirical Studies on the Concept of Health

Early studies on the concept of health have relied on surveys and unstructured interviews (Bishop & Yardley 2010; Blaxter 1990; Hughner & Kleine 2004). These studies suggest that the folk concept of health involves not only the absence of disease but also a variety of other states or capabilities, such as the ability to perform daily activities, vitality, fitness, psychosocial well-being, or balance. A key limitation of these studies is that they do not shed light on how *essential* these aspects are and how they relate to each other. Negativists may argue that these findings do not contradict their position. While many aspects are (more or less strongly) associated with health, only the absence of disease is essential to the concept, so they may contend. A second methodological approach relies on vignette studies, often in the context of self-rated health surveys (Bachmann et al. 2008; Grol-Prokopczyket al. 2011). However, early vignette studies were not designed to explore the content or the structure of the folk concept.

More recently, experimental studies directly tested whether health is the absence of disease and whether the concept of health is value-laden. For example, Varga and Latham's (2024) results challenge negativism and tentatively suggest

In D. Barner, N.R. Bramley, A. Ruggeri and C.M. Walker (Eds.), *Proceedings of the 47th Annual Conference of the Cognitive Science Society*

some form of *lifestyle positivism*. In a series of vignette-based studies, they found that individuals with well-managed diseases were considered *healthier* than individuals without any diseases but with sedentary lifestyles. A potential explanation for Varga and Latham's findings is that the negative evaluation of leading a sedentary lifestyle causes people to judge the individual as unhealthy. This interpretation gains additional support from empirical studies by Reuter and colleagues (2025), suggesting that the folk concept of health is centrally about leading a healthy lifestyle.

Concerning the question of whether the folk concept is inherently evaluative, empirical studies point in different directions. Although some findings support the hypothesis that lay people are committed to some form of naturalism about physical diseases (Machery 2023), evaluation seems to play a role for mental disorders (Varga & Latham 2024).

A New Methodological Approach

This paper adopts a new methodological strategy and explores from a linguistic angle whether health is simply the absence of disease. In contrast to unstructured surveys and stimulus-rich vignette studies, we use the simple sentence "Alex is healthy" to investigate what information ordinary people infer. Intuitively, one may infer that Alex has no disease (in line with negativism) and that she leads a balanced lifestyle (in line with lifestyle positivism). In addition, the speaker may communicate that all of Alex's bodily systems are functioning normally, and that she is in good physical condition and feels well. But the crucial question is: which of these implications belong to the (conventional) meaning of the concept of health?

To answer this question, we may rely on a combination of two tests designed to disentangle the meaning of a phrase from what is conversationally implicated: the implication and the contradiction test. These tests have already been used to explore the meaning of the concept of pain (Coninx, Willemsen, & Reuter 2023). A conversational variation of the contradiction test, namely the cancellability test, has been applied successfully in studies of causation and responsibility (Sytsma et al. 2023), lying and misleading (Reins & Wiegmann 2023), in the legal domain (Almeida et al. 2021), but most extensively in the context of evaluative language (Willemsen & Reuter 2021; Baumgartner et al. 2022; Willemsen et al. 2024). Inspired by Coninx and colleagues, our studies use the simple declarative statement "Alex is healthy" and deploy implication (Studies 1 and 2) and contradiction tests (Studies 3 and 4) to investigate whether negativism or lifestyle positivism is more in line with the folk concept.

Study 1: Implication Test

In this study, we explore what information is conveyed by the simple proposition "Alex is healthy." Our main interest concerns whether health is merely the absence of disease or includes lifestyle-related aspects. We offer participants an item supposed to reflect the core idea of negativism: "Alex has no disease" (NoDisease). In line with lifestyle positivism, we offer two items, namely, "Alex leads a balanced lifestyle" (Lifestyle A) and "Alex is active and eats well" (Lifestyle B).[1] Concerning the NoDisease and the two Lifestyle items, we pre-registered the following main hypothesis [2]:

Hypothesis 1: *NoDisease* and *Lifestyle* have average values above the means of '5'.

Our experimental paradigm also allows some insights into the evaluative issue. To this end, we explore whether broadly naturalist or normativist intuitions are more consistent with common usage (see more below).

Participants

For Study 1, 161 participants were recruited from Prolific Academic. Seven participants who failed to answer a simple control question were excluded from further analysis. The remaining sample consisted of 154 participants (M_{age} = 40.38 years (SD = 13.50), 70 females, 83 males, 1 other).

Methods and Stimuli

The target sentence is "Alex is healthy." All implications are introduced with the following phrase: "From this sentence alone and having no other information, what do you infer from this sentence?" Participants then see the following list of nine items in randomized order and provide their ratings on a scale ranging from "1 = cannot be inferred" to "9 = can be inferred with certainty."

1. **NoDisease:** Alex has no disease.
2. **Lifestyle A:** Alex leads a balanced lifestyle.
3. **Lifestyle B:** Alex is active and eats well.
4. **Normality:** All of Alex's bodily systems are functioning normally.
5. **Evaluativity:** Alex is in a good physical condition.
6. **Praise:** Alex deserves credit.
7. **Implicature Health:** Alex feels well.
8. **Presup Health:** Alex is alive.
9. **NoImplication Health:** Alex likes flowers.

Results & Discussion

The mean ratings, standard deviations, value of t-tests and p-values are listed in Table 1.

Mean ratings for *No Disease* and *Lifestyle B* were significantly above the midpoint, supporting Hypothesis 1. While *Lifestyle A* also exceeded the midpoint, the difference was not statistically significant. One possible explanation is that "balanced lifestyle" may be overly broad, allowing for a wide

[1] The primary reason for including two versions is the challenge of capturing the complexity of lifestyle in a single statement. The term 'lifestyle' itself is highly ambiguous. To address this, we included an additional statement (Lifestyle B) that emphasizes two prominent aspects of lifestyle: staying active and eating well.

[2] Our surveys and raw data are publicly available here.

	$\bar{x}$	SD	t	p
NoDisease	6.49	2.26	5.90	< 0.001
Lifest A	5.33	2.05	1.41	0.081
Lifest B	5.93	1.99	4.17	< 0.001
Normality	6.90	1.81	9.38	< 0.001
Evaluativity	6.83	1.71	9.53	< 0.001
Praise	3.98	2.43	-3.78	0.999
Implicature Health	6.08	2.30	4.18	< 0.001
Presup Health	8.48	1.57	19.84	< 0.001
No Imp	1.77	1.83	-15.83	1

Table 1: Mean values, standard deviation, t-values, and p-values for the Health conditions.

range of interpretations that may not be specifically linked to health-related behaviors. Overall, Study 1 indicates that people infer both the absence of disease and a healthy lifestyle from the claim that a person is healthy. However, how this content is communicated remains unclear, and addressing this question is the focus of Study 2. Our findings also suggest that people infer the protagonist's bodily systems are functioning normally, aligning initially with views that consider health a descriptive concept. Additionally, participants infer that the protagonist is in good physical condition, aligning initially with views that consider health an evaluative concept. However, they did not infer that Alex deserves credit, indicating that while the concept of health may have an evaluative component, it does not extend to praiseworthiness.

Study 2: Contradiction Test

Building on Study 1, Study 2 reports the results of a contradiction paradigm to examine which of the inferred implications are essential aspects of the target sentence. Participants are presented with a target sentence alongside the *negation* of one of its implications. For example, we pair the sentence "Alex is healthy" with "Alex is not active, nor does Alex eat well" and ask participants whether this combination constitutes a contradiction. If an implication is essential to the meaning of the folk concept of health, the target sentence should be incompatible with the negation of that implication. We pre-registered the following hypothesis:[3]

Hypothesis 2: For all target statements (except the control *Implicature Health*, contradiction ratings are significantly above the neutral midpoint of '5'.

Participants

In Study 2, 726 participants were recruited via Prolific Academic and compensated for their participation. Four participants did not respond to the test question, and seven failed both control questions, leaving a final sample of 715 participants. Among them, 356 self-identified as female, 351 as male, six as 'other,' and two did not specify their gender. Age-related data was not collected.

[3]Our surveys and raw data are publicly available here.

Methods and Stimuli

We implemented an 7×1 between-subjects design. Participants were first presented with the sentence "Alex is healthy," followed by one of the test items.

1. **NoDisease:** Alex has a disease.
2. **Lifestyle A:** Alex does not lead a balanced lifestyle.
3. **Lifestyle B:** Alex is not active, nor does Alex eat well.
4. **Normality:** Not all of Alex's bodily systems are functioning normally.
5. **Evaluativity:** Alex is in a bad physical condition.
6. **Implicature Health:** Alex does not feel well.
7. **Presup Health:** Alex is dead.

Participants were then instructed to consider whether the two sentences contradicted each other and to provide their rating on a scale from "1 = not a contradiction at all" to "9 = definitely a contradiction."[4]

Results & Discussion

The mean ratings, standard deviations, value of t-tests and p-values are listed in Table 2. The distribution of the responses for the target items "NoDisease" and "Lifstyle" are shown in Figure 1.

	$\bar{x}$	SD	t	p
NoDisease	6.45	2.65	4.46	< 0.001
Lifest A	4.60	2.43	-1.3	0.906
Lifest B	5.33	2.75	0.95	0.172
Normality	5.12	3.08	0.32	0.374
Evaluativity	6.43	2.87	4.02	< 0.001
Implicature Health	4.05	2.78	-2.77	0.996
Presup Health	8.39	1.78	15.01	< 0.001

Table 2: Mean values, standard deviation, t-values, and p-values for the Health conditions.

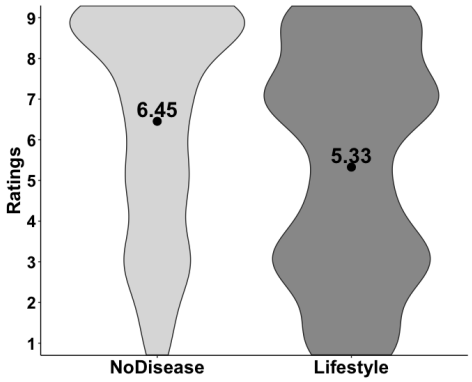

Figure 1: Violin plots showing the distribution of responses for the target items *NoDisease* we well as *Lifestyle B*.

[4]Before answering our test items, participants received a short training elaborating on the notion of a contradiction. The exact wondering can be found here.

The results reveal a complex picture. "Alex is healthy" and "Alex has a disease" were judged to contradict each other, indicating that the absence of disease is a necessary condition for being considered healthy. Concerning our two lifestyle items, we find lower means. While ratings for Lifestyle B were above the midpoint, they did not reach statistical significance. As a consequence, one may be tempted to conclude that lifestyle is not essential for the folk concept of health.

However, a closer examination of the data (Figure 1) reveals a symmetric bimodal distribution centered around the midpoint of '5'. This suggests a divide among participants: a substantial portion found "Alex is healthy" and "Alex is not active, nor does Alex eat well" contradictory, while an equally significant share did not. How can we explain this distribution? Consider the following analogous example: While 'financial institute' may be semantically entailed by one sense of the ambiguous term 'bank', it is not semantically entailed by the other sense(s) of the term, e.g., the bank of the river. Consequently, without a more specific context that would dissolve the ambiguity, one may expect low contradiction ratings for e.g., "This is a bank. This is not a financial institute". The contradiction test cannot properly account for ambiguous terms. Given our results, ambiguity is at least a plausible option worth exploring further.

Study 3: Contextualized Implication Test

If the concept of health is inherently ambiguous, as Study 2 suggests, then its meaning—whether it refers to the absence of disease, overall well-being, or lifestyle factors—may depend on the specific context in which it is used, with context serving to resolve the ambiguity. To investigate this, we conduct a contextual manipulation study, embedding the sentence *"*Alex is healthy*"* in two different contexts for comparison.

We present participants either with a personal trainer context in which a personal trainer makes a health statement to another personal trainer or with a medical context in which a physician makes a health statement to another physician. The statement is either "I am healthy" (first person) or "X is healthy" (third person). We then ask what additional information the participants infer from this sentence. We pre-registered the following hypothesis to test the relation between Context and the two implications "NoDisease" and "Lifestyle":[5]

Hypothesis 3: There is a significant interaction between Context and Item for the categories "NoDisease" and "Lifestyle". Specifically, the Lifestyle category receives higher ratings compared to the Absence of Disease category in the personal trainer context relative to the physician context.

[5]Our surveys and raw data are publicly available here.

Participants

341 participants were recruited from Prolific Academic and reimbursed for their participation. Four participants who failed to answer a simple control question were excluded from further analysis. The remaining sample consisted of 337 participants (M_{age} = 38.54 years (STD = 13.44), 156 females, 173 males, 4 other, and 4 non-identified).

Methods and Stimuli

We used a $2 \times 2 \times 7$ mixed design, with the between-subjects factors PERSPECTIVE (First, Third) and CONTEXT (Trainer, Doctor), and the within-subject factor ITEM. We presented participants with the following vignette:

> Alex is a personal trainer at the local gym (is a doctor at the local hospital). One day, Alex says to another personal trainer (doctor) [about a client (patient)]: "I am [My client (patient)] is healthy."

Participants were then asked "Suppose that Alex is right. From this statement alone and having no other information, what do you infer from Alex's statement?" and answered on a 9-point Likert scale, how strongly they inferred a set of statements. We used the same target statements as in Study 1. The two key statements that we investigate and report in detail in this paper are "Alex has no disease" and "Alex is active and eats well".

Results & Discussion

A repeated measures ANOVA was performed with participants' implication ratings as the dependent measure, the within-subject factor CONTEXT and the between-subject factor PERSPECTIVE. There was a significant interaction between ITEM and CONTEXT, $F(1,333) = 35.81, p < 0.001, \eta^2 = 0.10$. Thus, Hypothesis 3, which states that the differences in ITEM depend on the context of the utterance was supported by our data. The mean ratings are displayed in Figure 2.[6]

The findings suggest that in the context of a conversation between personal trainers, people associate the concept of health more strongly with lifestyle factors such as diet and physical activity. Conversely, in the context of a conversation between physicians, health is more commonly understood as the absence of disease. This difference highlights the contextual flexibility of the term "healthy" and reflects the varied dimensions of health that individuals prioritize depending on their contextual reference.

Study 4: Contextualized Contradiction Test

Following the implication test in Study 1, Study 2 introduced a contradiction test to explore how different implications of the sentence "Alex is healthy" are communicated. Similarly, we now extend our investigation of the contextual implication

[6]The within-subject factor ITEM, $F(1,333) = 8.87, p = 0.003, \eta^2 = 0.03$, was significant. The between-subject factors were not significant: CONTEXT, $F(1,333) = 0.23, p = 0.635$; and PERSPECTIVE, $F(1,333) = 0.13, p = 0.718$.

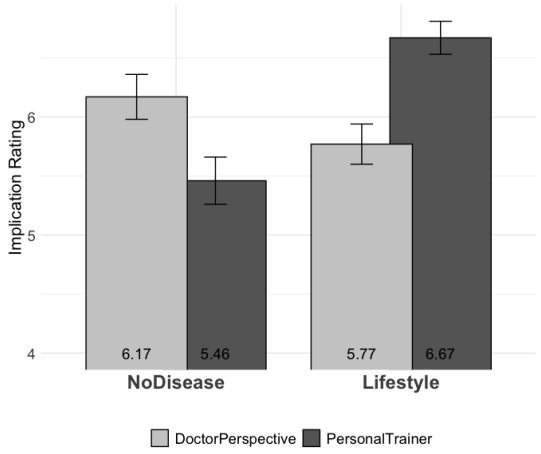

Figure 2: Results of Study 3. Error bars indicate standard error around the means.

test from Study 3 with a contextual contradiction test. Mirroring the design of Study 2, participants are presented with a target sentence alongside the negation of one of its implied meanings. For example, the sentence "*x* is healthy" is paired with "Also, *x* has a disease," and participants are asked to judge whether this combination constitutes a contradiction.

Since no effect of Perspective was observed in prior analyses, we focus exclusively on the third-person perspective in this study. Moreover, based on the interaction identified in Study 3 between Context (Personal Trainer vs. Physician) and Item (Lifestyle vs. No Disease), we pre-registered the following main hypothesis:[7]

Hypothesis: There is a significant interaction between Context and Item for the categories "NoDisease" and "Lifestyle." Specifically, the Lifestyle category receives higher ratings than the Absence of Disease category in the personal trainer context relative to the physician context.

Participants

In Study 4, 726 participants were recruited through Prolific Academic. After excluding 89 individuals who failed the attention check, the final sample consisted of 702 participants. Of these, 349 identified as female, 339 as male, 14 selected "Other" or did not disclose their gender. The participants' mean age was 40.68 years (SD = 12.85).

Methods and Stimuli

We employed a 6×2 between-subjects design, featuring two independent variables: CONTEXT (Trainer vs. Doctor) and ITEM. In the following, we only report the results of the main target items "NoDisease" and "Lifestyle." Participants were first introduced to either the Trainer or Doctor context:

> Alex is a personal trainer at the local gym (is a physician at the local hospital). One day, Alex says to another personal trainer (doctor) [about a client (patient)]: "My client (patient)] is healthy. Also, [insert ITEMS below]"

1. **NoDisease:** my client (patient) has a disease.
2. **Lifestyle:** my client (patient) is not active, nor does my patient (client) eat well.

Participants were then asked "Do Alex's two sentences contradict each other?" and answered on a 9-point Likert scale, anchored at "1 = not a contradiction at all" to "9 = definitely a contradiction".

Results & Discussion

A two-way ANOVA was conducted to examine the effects of **Context** and **Item** on ratings, as well as their interaction. The analysis revealed a significant main effect of **Item**, $F(1,230) = 9.67$, $p = .002$, indicating that ratings differed significantly between the items NoDisease and Lifestyle. In contrast, the main effect of **Context** was not significant, $F(1,230) = 0.29$, $p = .593$, suggesting that context did not independently influence ratings. Importantly, there was a significant interaction between **Context** and **Item**, $F(1,230) = 3.90$, $p = .049$, indicating that the effect of item on ratings varied depending on the context. The mean ratings of the responses are displayed in Figure 3.

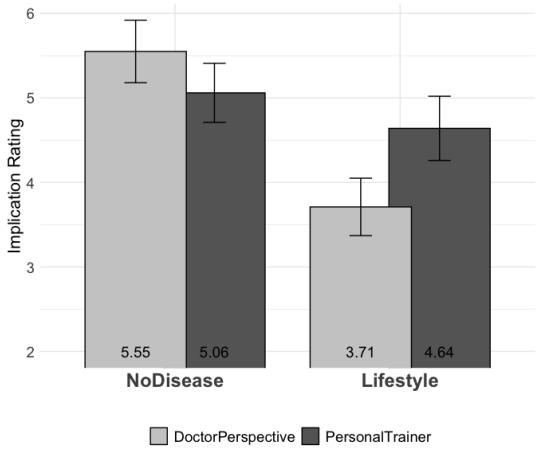

Figure 3: Results of Study 4. Error bars indicate standard error around the means.

Building on the findings of Study 3, Study 4 further investigated the context-sensitive and multidimensional nature of 'healthy' using a contradiction test to directly probe which aspects of the concept are semantically encoded. The data support the predicted interaction effect between Context and Item, with "Lifestyle" receiving higher contradiction ratings than "NoDisease" in the personal trainer context relative to the physician context. Similar to Study 3, the results revealed contextual flexibility in the meaning of "healthy.' In medical contexts, 'healthy' is strongly associated with dis-

[7] Our surveys and raw data are publicly available here.

ease absence, normal bodily function, and overall well-being, whereas in fitness-related settings, lifestyle factors are an important feature of being healthy. These results further highlight the contextual flexibility of 'healthy' with different aspects of health becoming more salient depending on the setting.

General Discussion

Our research deepens the understanding of how health is conceptualized in everyday language by identifying implications from health-related statements, assessing their implications, meaning, and exploring the impact of conversational context on these interpretations. With respect to our main focus, in Study 1 we found that participants typically infer both the absence of disease and the maintenance of a healthy lifestyle when interpreting the statement "Alex is healthy," indicating that extant perspectives within the literature—both negativist and positivist—accurately mirror significant aspects of the folk concept. However, our findings based on the second study lend some support to a negativist position: participants only comprehended the statements "Alex is healthy" and "Alex has a disease" as strongly contradictory, suggesting that only the absence of disease is a semantically entailed and necessary component of the concept of health. Somewhat surprisingly, and in contrast to recent studies that have closely linked health to lifestyle factors (Varga and Latham 2024; Reuter et al. 2025), we find that leading a healthy lifestyle is not semantically entailed by the statement "Alex is healthy."

However, caution is warranted before drawing definitive conclusions from this result. It is possible that having two lifestyle items in our studies ("Lifestyle A" and "Lifestyle B") influenced the findings. Offering multiple options might have introduced ambiguity regarding what exactly is meant by a "healthy lifestyle," and participants may have spread their interpretations across both options, diluting the strength of agreement on any single lifestyle-related inference from the health statement. This could also have led participants to focus on the arguably simplest aspect of health (i.e., absence of disease) rather than more complex lifestyle behaviors.

Upon closer examination, this observation seems to resonate with our results, which reveal a symmetric bimodal distribution for some items: a substantial number of participants found the statements "Alex is healthy" and "Alex is not active, nor does Alex eat well" to be contradictory, suggesting that they adopt a more holistic concept of health that includes lifestyle factors. Conversely, an equally significant number did not see these conditions as mutually exclusive, indicating a more traditional concept of health that primarily turns on the absence of disease. This variation within the same sample further highlights the contextual flexibility of 'healthy.'

This might be taken to suggest that 'healthy' is *polysemous*. However, if that were the case, one would expect low perceived contradiction when asserting the presence of disease in a fitness context or the absence of beneficial lifestyle in a medical context. But this is not what our findings show. Instead, they suggest that although one aspect of health tends to be more salient in a given context, other aspects still play a role (see also Reuter 2025). Correspondingly, instead of distinct, context-dependent meanings as one would expect of a polysemous concept, we see a gradual, context-sensitive shifts in how different aspects of health—disease absence, normal bodily function, and lifestyle—influence contradiction judgments. This pattern aligns with the graded structure of *cluster concepts*, where all aspects belong to a single concept but differ in salience across contexts, allowing each context to emphasize specific aspects based on the specific goals, expectations, and norms relevant to those contexts.

Although this was not our primary focus, our findings suggest that participants infer the protagonist's bodily systems are functioning normally, aligning with descriptive views of health, while also inferring that s/he is in good physical condition, aligning with evaluative views of health. Interestingly, only the evaluation of "good physical condition" was semantically entailed, while, somewhat surprisingly, normal functioning was not. Nonetheless, we should tread carefully before concluding based on this outcome, particularly in assuming they support normativism over naturalism. One reason is that "good physical condition" can be understood both in a descriptive sense (i.e., as being in a state that meets certain value-neutral criteria) and an evaluative sense (i.e., as being in a desirable state that enhances well-being). Regardless of whether the semantically entailed "good physical condition" is descriptive or evaluative, our results show that it represents something robust, as it does not depend on conversational context like the absence of disease or the presence of a healthy lifestyle. This may suggest that participants comprehend "good physical condition" as a more constant and universal aspect of health than aspects tied to lifestyle choices or the mere absence of disease.

Overall, our findings highlight the inherent complexity of the concept "health", and offer some preliminary evidence that its meaning can vary significantly across different professional and conversational settings. This variability underscores the need for health communication strategies to be specifically tailored to the context of their delivery. Aligning messages closely with the circumstances of their intended audiences might increase engagement and improve outcomes. For these reasons, future studies should investigate why some aspects remain context-independent while others do not and examine the effects of individual differences such as cultural background, health literacy, and professional expertise.

Acknowledgments

We would like thank the members of the Zurich X-Phi Lab, Lucien Baumgartner, Severin Frohofer, Jan Garcia Olier, Iris Hunziker, and Ethan Landes. We also appreciate insightful feedback from Jochen Briesen and Nora Heinzelmann. The research of Pascale Willemsen was funded by the Swiss National Science Foundation (SNSF)—PZ00P1_201737.

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