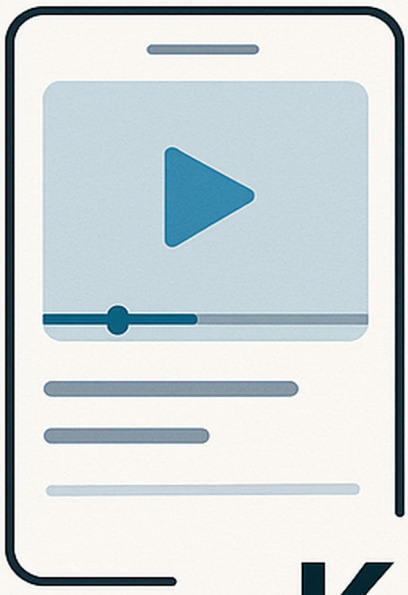
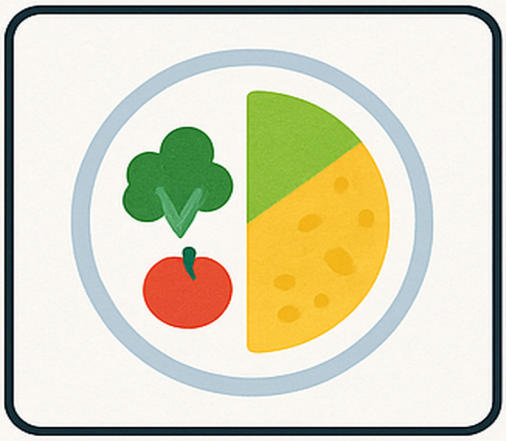
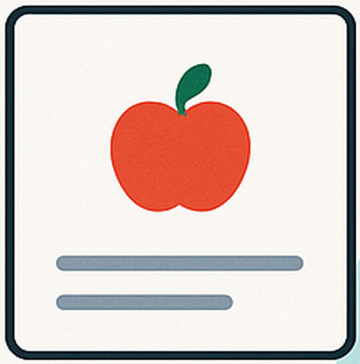


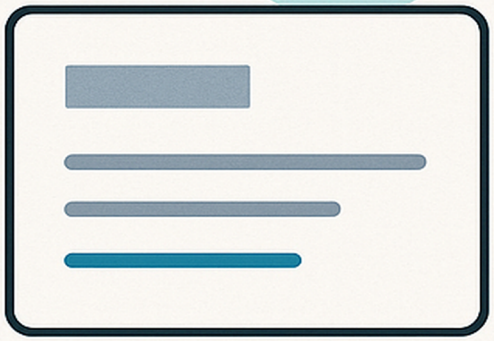


Keeping it bite-sized

Delivering nutritional information effectively through short-form content

Jasper Baars
TU Delft





Delft University of Technology

Thesis

Engineering and Policy Analysis

Keeping it bite-sized: Delivering nutritional information effectively through short-form content

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July 3, 2025

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TU Delft Delft University of Technology

Preface

This thesis marks the final step of my Master's journey in the Engineering and Policy Analysis program at Delft University of Technology. The idea for this study originated from my own experiences navigating the often contradictory world of fitness advice, influencer marketing, and supplement use. As a regular gym-goer and an observer of online fitness trends, I noticed how pervasive supplement related content had become on social media platforms.

This project would not have been possible without the support and guidance of several individuals. I would like to express my deepest gratitude to my thesis supervisors, Dr. Caroline Figueroa and Dr. Eric Molin, whose critical feedback and patient mentorship guided this work from an initial idea to a structured and meaningful research project.

I would also like to thank my parents for supporting me throughout my academic career, be it through quizzing me at the dinner table in high school, or the random snacks "suddenly" appearing on my desk during exams. I would also like to thank Berend for giving me that much needed kick in the pants every now and then. Who knew a couple of golfknaken would lead us to this point. Finally last but definitely not least, I would like to express my deepest gratitude to my ever supportive girlfriend Romy. Even through all off my stressful days and times she had to go to bed alone, she'd always bend over backwards to help in whatever way she could, and I am truly lucky to have her by my side.

Before you lays the culmination of my work and experience gained at the TU Delft, and I hope you'll enjoy.

J.S.P. Baars
Delft, July 2025

Executive summary

This study explores how changes in infographic design, specifically branding, sourcing, and message framing, affect individuals' intentions to change their sport supplementation behavior. With the increasing prevalence of dietary supplement use among adolescents and young adults, there is a growing concern about lower nutritional literacy and the associated health risks. Public health bodies, such as the Dutch Food and Consumer Product Safety Authority (NVWA), face the dual challenge of making scientifically accurate information both accessible and engaging, particularly in a digital media environment that favors shorter content and visual appeal.

Through a survey based experimental design, participants evaluated six infographics varied in their attributes. They were asked to rate each on perceived credibility, accuracy, usefulness, shareability, and their intention to follow the advice presented. The results offer a nuanced understanding of how health communication through visual media interacts with audience characteristics and attitudes.

Overall the study finds that while infographic design elements do influence user ratings, however these effects are highly dependent on who is viewing the content. Infographics that featured trusted branding, such as government or public health logos, and credible sourcing, like academic references, were generally seen as more credible and useful. However, these effects were not universal. For example, government branding increased trust among some, but reduced it for others. This was especially the case for those who held strong positive views toward supplements and were skeptical of governmental bodies. Similarly, academic sourcing was only effective for more highly educated individuals, while generic internet links sometimes reduced perceived credibility in this group.

Among the various predictors of behavioral intent, shareability emerged as the most influential. Participants were more likely to act on infographic content when they felt it was worth sharing with others. However it should be noted that this might also be the other way around where participants were more likely to share information they intended to adopt. Either way this finding underscores the importance of social validation, where content that aligns with a user's identity, values, and social network has greater persuasive power. Credibility and usefulness also had positive effects on behavioral intent, but accuracy had a notably weaker and influence. This suggests that factual correctness alone is not enough to drive behavior change and that emotional and social relevance play a much larger role.

Audience characteristics further shaped infographic effectiveness. Older participants tended to be more skeptical, possibly due to more entrenched beliefs. Highly educated individuals responded more positively to academic references, while high supplement users were resistant to negatively framed messages, likely due to confirmation bias. Supplement exposure played a moderating role as well; those frequently exposed to supplement related content were more open to internet sourced information. Interestingly, participants across all demographics were generally hesitant to share supplement infographics publicly, even when they found them credible or useful.

This study makes several contributions to the academic literature. It extends the Information Acceptance Model by applying it to visual health communication about sport supplements. It does this by showing how infographic attributes interact with psychological and demographic variables to affect behavioral intent. It also incorporates socio-demographic moderators into the model, offering insights into how different audience groups process visual health information. Notably, the study finds a weaker role for perceived accuracy in predicting behavioral intent when information challenges existing beliefs. This contrasts previous findings offering a more nuanced insight into how accuracy shapes intent.

Based on these findings, the study offers several practical recommendations for public health institutions such as the Dutch Food and Consumer Product Safety Authority (NVWA). First, infographic design should be tailored to the targeted demographic. Branding and sourcing strategies should align with the values and trust dynamics of each audience segment. Second, message framing should be adapted to audience attitudes, this also includes focussing on the positives even when trying to disuade supplement use. Third, campaigns should avoid one-size-fits-all approaches and instead use segmented strategies, targeting different groups through tailored content and distribution channels. Fourth, to increase shareability infographics should be optimized for specific platforms, using engaging visuals and language suited to social media. Finally, campaigns should include behavioral and environmental cues like posters in gyms, influencer messaging, and school curricula to reinforce intended behaviors and bridge the gap between intention and action.

The study acknowledges several limitations. The static design of infographics excludes more dynamic formats such as videos or interactive content, which are common in real life social media environments. Additionally, the survey setting creates artificial exposure, lacking the distractions and algorithmic filtering typical of real-world content consumption. The constructs used to measure attitudes and behavioral intent may oversimplify complex belief systems, and the study only measures intent, not actual behavior change. Lastly, the focus on only two supplements, those being protein and creatine, limits the generalizability of findings to other supplement types.

Future research should explore how dynamic and interactive formats affect user engagement and behavior, especially in real-world digital environments. Investigating a broader range of supplements could uncover new insights into user responses. Additionally, further studies should delve deeper into what drives shareability, given its strong link to behavioral intent despite generally low baseline ratings. Understanding these mechanisms can significantly enhance the design and effectiveness of future health communication campaigns.

In conclusion, this research demonstrates that while design matters, audience alignment matters more. Infographics must not only be accurate and well-crafted, they must also resonate with the viewer's beliefs, experiences, and social identity. For health communication to be effective, it must move beyond generic information delivery and instead engage audiences in a way that feels personally and socially relevant.

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1 Introduction

Social media has become a key source of health information for people. Platforms like Instagram and TikTok favour short-form, visually engaging content making infographics an increasingly popular way to communicate complex information on topics like sport supplementation. However, the effectiveness of these infographics in promoting informed behavior is still poorly understood.

Supplement use among adolescents and young adults is widespread, yet nutritional literacy in these groups remains low(Carroll et al., 2022). Many rely on products like protein powders and pre-workouts without fully understanding their effects, dosages, or risks often influenced by unregulated marketing and online fitness influencers (El Khoury et al., 2019) (Antonio et al., 2021).

Infographics have the potential to improve health communication by presenting factual content in a clear, appealing format. However, it remains unclear how their design, message framing, and presentation context influence credibility, acceptance, and behavioral intent. Additionally, little is known about how personal factors such as age, gender, or fitness experience affect how supplement infographics are perceived.

1.1 Problem Statement

Proper nutrition is vital to maintaining physical health and athletic performance, yet nutritional literacy remains notably low among adolescents and young adults. For example, a study on Canadian teens reported an average nutrition knowledge score of only 54.6% (Brown et al., 2021). Despite this gap, dietary supplement use is widespread among youth, with up to 89% of college athletes consuming at least one form of supplementation (Piattoly, 2022). This raises significant concerns, as many users fail to understand the proper use or potential health risks of supplements, particularly when misinformed by poorly regulated marketing (Joy et al., 2015)(El Khoury et al., 2019). This high prevalence underscores the importance of addressing supplement use in health communication strategies targeted at young athletes. Given the potential risks associated with uninformed supplement consumption, it's crucial to provide evidence based guidance. Infographics and other educational tools can play an important role in spreading accurate information and promoting safe practices amongst this demographic.

The Information and Acceptance Model (IACM) has shown promise in explaining how users process and adopt online information (Erkan & Evans, 2016), this has been extended to infographics in health communication (Chu et al., 2024). However, the specific infographic attributes that most strongly influence behavioral intent are yet to be identified. Given the strategic goals of Dutch public health bodies such as the NVWA, whose campaigns rely heavily on information dissemination (NVWA, 2025), there is an urgent need to determine how to design infographics that resonate with different target audiences and lead to intended behavioral outcomes. The communication development model discussed by Renes et al., 2011 underscores the importance of understanding behavioral determinants and shaping messages accordingly. It argues that effective campaigns must consider the social context of the audience, use credible messengers, and apply behavioral theory to ensure that interventions align with the targets experiences and motivations (Renes et al., 2011). This highlights the necessity for research that integrates psychological models of information acceptance with communication design strategies.

NVWA faces a central dilemma: how to balance information accuracy with message accessibility. Evidence based content is often too complex to engage younger audiences, yet simplifying it or using influencer marketing risks muddying the facts or weakening trust (Smit et al., 2020). This balance is skewed further by a media landscape where adolescents are constantly bombarded with conflicting messages that often contradict official

guidelines or research (Findley et al., 2022).

Infographics are a promising way to communicate health information because they are concise and visually appealing. However, there is still limited knowledge about which design elements are most effective in influencing behavior. This creates challenges for policymakers, who must decide not only what information to share, but also how to design and adapt it for different social and demographic groups.

Meanwhile, young consumers must navigate conflicting information whilst not having high nutritional literacy (Brown et al., 2021), making them vulnerable to misinformation and risky supplement use. All actors, health authorities, designers, and adolescents, operate within an uncertain environment where effective, trustworthy communication is essential but difficult to achieve.

To help solve the problem, policymakers and campaign designers need clear insights into how specific infographic design features affect the acceptance and impact of health information. They also need to understand how these effects vary across different socio-demographic groups, such as age, gender, education level, and supplement usage. This knowledge would allow them to tailor communication strategies more effectively, choosing not only the right content but also the best way to present it. They need evidence on which combinations of message design and audience characteristics lead to greater trust, understanding, and ultimately, behavioral intent to use supplements safely and responsibly. These insights are essential for designing campaigns that can cut through conflicting online messages and actually influence young people's decision making.

While the Information Acceptance Model (IACM) has been applied to health-related infographics, existing studies have largely focused on highly educated samples and offer limited insight into which specific design attributes influence intent to follow. In particular, little is known about how different infographic features impact behavioral intentions related to sport supplement use. Moreover, there is a lack of understanding of how demographic differences such as age, gender or fitness experience shape these effects. This research aims to address these gaps by identifying which infographic characteristics are most effective and how their impact varies across diverse user groups.

1.2 Societal Objective

The societal objective of this research is to provide insights that can support the improvement of how nutritional information is communicated through social media. Many users take supplements but lack proper knowledge, leading to health risks.

The findings aim to help the Dutch Food and Consumer Product Safety Authority (NVWA) create more effective public health campaigns. By identifying what kind of messages work best for different groups, the research supports more accurate campaigning and better informed decisions.

Key actors include the NVWA, supplement users, policy makers, and gym and healthcare professionals. Together, they can use tailored infographics to spread accurate information and promote healthier habits.

1.3 Research Questions

Based on the research objective, the main research question can be derived.

(RQ) How do infographic information attributes influence intent to change sport supplementation behavior amongst different socio-demographic groups?

To explore the relationship between socio-demographic factors, infographic information attributes, and intent to change sport supplementation behavior, several sub-questions have been formulated. These sub-questions aim to investigate how variations in infographic design elements shape individuals' intentions to modify their supplementation choices.

(SQ-1) How do changes in infographic information attributes affect the behavioral intent predictors?

This sub-question explores how changes in infographic attributes affect key predictors of behavioral intent: perceived credibility, information adoption, and information usefulness. It examines how specific design choices influence how trustworthy, actionable, and valuable the information is perceived to be, thereby identifying which elements are most effective in influencing intent to change behavior.

(SQ-2) To what extent do individuals with different personal characteristics differ in their assessment of the infographics?

This question aims to identify whether people from different demographic or experiential backgrounds evaluate infographics differently. It informs how tailoring infographics to specific audiences could increase impact.

(SQ-3) How do specific sport supplement types influence changes in behavior intent as a result of infographics?

This sub-question explores whether the type of supplement featured in the infographic, such as protein powder or creatine, affects a viewer's willingness to change behavior. It accounts for personal biases or familiarity with certain supplements.

To answer the research questions, a survey is conducted in which participants evaluate infographics with systematically varied attributes. The survey collects socio-demographic information, as well as personal supplement use, perceived supplement use among peers, and general attitudes toward sport supplements.

Participants are shown a series of infographics with varied attributes and be asked to rate questions relating to credibility, information adoption, and intent to follow on a 7 point scale.

All data is analyzed using multiple regression models, which allow for assessing the effect of infographic attributes on outcomes while controlling for individual differences. This approach also enables testing interaction effects, making it well suited to explore how personal characteristics and supplement types influence responses. This will form the basis with which to support the recommendations made to the NVWA for proper infographic construction.

1.4 Outline

Chapter 2 reviews the relevant literature on health communication, infographic design, and sport supplementation. It identifies key knowledge gaps concerning the effectiveness of infographics and emphasizes the role of perceived credibility and behavioral intent in shaping supplement related decisions. The chapter also outlines best practices in infographic communication and introduces the infographic design and the reasons for measurement of personal characteristics and attitudes in relation to the research questions. This is followed by chapter 3 which will delve further into the theoretical background.

Chapter 4 outlines the methodological approach of the study, beginning with the structure and setup of the survey. It then explains how multiple regression models are used to analyze the effects of infographic attributes on perceived credibility and intent to follow. Additionally, it describes how the models account for variations across socio-demographic groups and different supplement types.

Chapter 5 presents the results of the regression analyses and interprets the findings in relation to the subquestions. It focuses on how infographic attributes shape perceived credibility and intent, how different groups respond to the content, and how the type of supplement featured influences behavioral intention.

Chapter 6 reflects on the broader implications of the findings for health communication practices. It discusses the potential of tailored infographics in public health campaigns, addresses the limitations of the study, and suggests directions for future research.

2 Literature Review

To effectively promote evidence based sport supplement usage among supplement users, it is crucial to understand not only the content of health communication but also how it is perceived by diverse individuals. This literature review examines three core domains that inform the design and dissemination of infographic based nutritional information. The flow diagram of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) structure from Moher et al., 2010 is used to systematically select relevant articles for each literature search, with the exception of section 2.2 which relies on snowballing.

2.1 Infographic Effectivity

First, it is important to explore what makes an infographic appealing. Since visual appeal plays a crucial role in capturing attention and encouraging engagement (Riswanto et al., 2024), understanding which design elements contribute to this appeal is a foundational step in creating effective communication materials. The overarching research question to guide this part of the literature review is: "What makes an infographic appealing and effective?". Figure 2.1 shows the search strategy used in uncovering design principles to maximize appeal and for effective communication. Due to the sheer number of results, it is opted to review the first 50 entries.

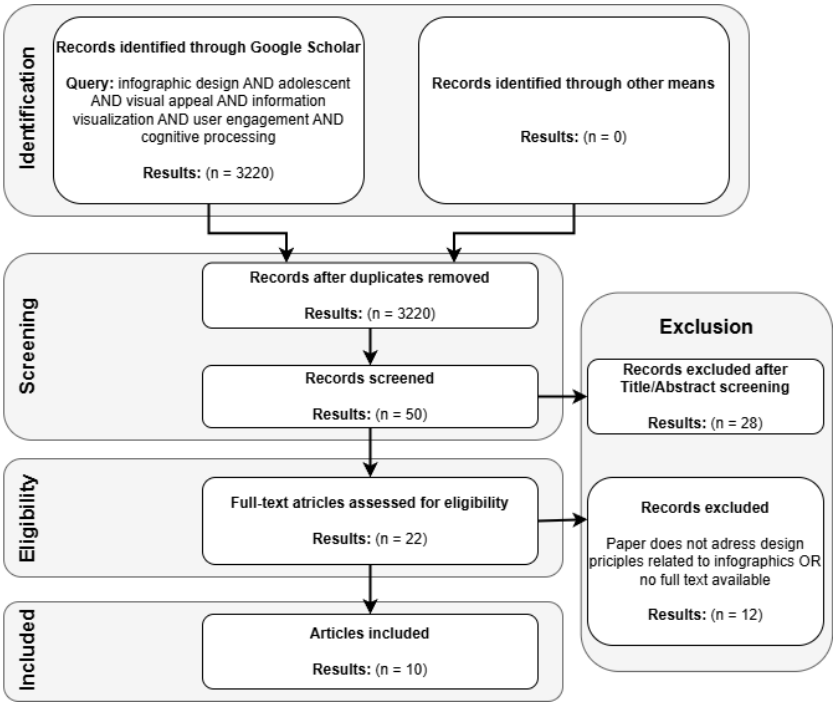

Figure 2.1: Prisma flow diagram infographic search strategy

2.1.1 Design and Visual Complexity

The visual appeal of an infographic plays a big role in how effective it is. Harrison et al., 2015 claim that aesthetically pleasing infographics can create a strong first impression, increase engagement, and enhance information absorption and memorability. Furthermore, Kurosu and Kashirnum, 1995 found that the aesthetic–usability effect, which describes that users perceive more aesthetic designs as more intuitive, can enhance user engagement

and satisfaction. Adversely, Majooni et al., 2018 have shown that increased visual complexity in infographics can lead to higher cognitive load, reducing comprehension and discouraging further interaction. This is further strengthened by a study by Michailidou et al., 2008, which states that effective infographic design requires a balance between visual appeal and information clarity to ensure that aesthetics do not compromise comprehension.

2.1.2 Mental Workload and Information Processing

It is well established that chunking information into smaller parts reduces mental workload, making it easier for learners to process and remember information (Bodie et al., 2006). This is further emphasized by Ngandoh et al., 2025 who explore the efficacy of chunking strategies in improving student learning outcomes. It demonstrates that breaking down complex material into smaller, more digestible pieces enhances comprehension and retention, thereby reducing cognitive load. This further demonstrates that a proper infographic should chunk its information to ensure optimal efficacy.

2.1.3 Trust and Credibility

A study by Li et al., 2018 found that viewers rely on secondary cues, such as source attribution and visual design quality, to judge the credibility of infographics. Participants perceived data attributed to reputable sources as more credible. Furthermore, they found that perceived design quality was positively related to credibility. This is further supported by Pandey et al., 2023 who also found that both the design of the visualization and its source significantly impact users' trust perceptions.

2.1.4 Cultural and Contextual Relevance

A study by Burgio and Moretti, 2017 highlights that audience nature, knowledge, tastes, and expectations significantly influence the effectiveness of infographics. This is in line with a study by Cabezas-García and Reimerink, 2022 who suggest that combining textual and visual material, considering cultural context, improves understanding of said material.

2.1.5 Key Takeaways

Effective infographics combine visual appeal with clarity to enhance user engagement and understanding. Attractive design draws attention and makes content more memorable, but too much visual complexity can overwhelm viewers and hinder comprehension. Breaking information into smaller, digestible parts helps reduce cognitive load and supports better learning. Trust is influenced by both the design quality and the credibility of the source, with professional appearance and clear citations boosting perceived credibility. Lastly, an infographic's effectiveness is in part dependent on personal characteristics such as cultural background, prior knowledge, and individual preferences.

2.2 Information Adoption and Behavioural Intent

Information acceptance models explain how individuals receive, evaluate, and decide to adopt information. These models are central in understanding behavioral responses to new technologies, innovations, or policy messages. The overarching research question to guide this part of the literature review is: "What factors influence the (subconscious) decision to adopt information?".

2.2.1 Infographics and Information Acceptance Models

Chu et al., 2024 tested whether the Information Acceptance Model (IACM) proposed by Erkan and Evans, 2016 applies to infographics on healthy lifestyle and fitness topics. The study found information usefulness as a predictor of infographics adoption. It further found that attitudes towards information and information credibility are predictors of behavioural intentions.

To understand the theoretical framework the of IACM, it is beneficial to explore the models it is based upon. The IACM is the result of a theoretical synthesis of several foundational models in information and behavior research. The model draws upon the Technology Acceptance Model (TAM) by Davis, 1989, which emphasizes two key constructs, perceived usefulness and perceived ease of use, as predictors of technology adoption behavior. While TAM has proven highly versatile across domains such as e-learning, and social media, it primarily focuses on users' intentions to use a technology rather than whether those intentions actually lead to

real usage behavior (Bagozzi, 2007). Therefore, IACM adopts TAM's two central constructs without applying the model in its entirety. The Theory of Reasoned Action (TRA), introduced by Hill et al., 1977, further informs IACM by contributing the constructs of attitude and behavioral intention. This model emphasizes that attitudes shape intentions, which in turn are precursors to behavior. Although TRA has been criticized for not covering external influences on behavior (Heimlich & Ardoin, 2008), its conceptualization of intention remains valuable, especially in contexts where actual behavior is harder to observe. The IACM also integrates the Information Adoption Model (IAM), which focuses on how individuals process and adopt information. IAM centers on argument quality and source credibility as precursors to perceived information usefulness, which in turn leads to adoption (Sussman & Siegal, 2003). However, it gave limited attention to how users personally evaluate or feel about the information, thus Erkan and Evans, 2016 chose to expand the model by incorporating attitudes and individual information needs. The resulting IACM states that information quality, credibility, needs, and attitude toward the information collectively influence perceived usefulness. This perceived usefulness then drives information adoption, which, along with attitude, shapes behavioral intention. Empirical work by Chu et al., 2024 affirms the model's applicability to health communication, finding that infographics on social media can effectively facilitate information adoption when perceived as useful and credible. Given the centrality of information acceptance in shaping behavioral change (Kwan et al., 2010), the IACM offers a robust framework for evaluating how changes in infographic design attributes might influence user response.

2.2.2 Intent as a predictor for behavioral change

Renes et al., 2011 investigated how Dutch government campaigns can be made more effective in changing behavior. Their study found that although mass media campaigns do influence behavior, the effect is typically relatively low, ranging from a few percent up to 15%. Furthermore, they concluded that there is no one-size-fits-all approach to enhancing campaign effectiveness. However, certain factors do increase the likelihood of behavioral change. These include promoting new or one-time behaviors, using multiple interventions simultaneously, aligning the campaign with supportive policies, and leveraging social and physical environments. In contrast, efforts to change existing or repetitive behaviors, or relying solely on communication without supportive policy, tend to be less effective.

Renes et al., 2011 distinguish between implicit and explicit communication strategies. Implicit strategies aim to trigger behavior through subconscious, automatic processes, while explicit strategies target behavioral intention via conscious information processing. Explicit strategies typically lead to longer lasting change, but successful implicit strategies can also produce lasting effects through repeated positive experiences.

The study also discusses the role of intent in behavior change, emphasizing that not all actions stem from conscious decisions. Drawing on dual-process theories (Thompson, 2009), it distinguishes between automatic (System 1) and reflective (System 2) processes. While traditional models highlight intention as a key predictor, research suggests this link is often overestimated. For instance, Sheeran, 2002 found that nearly 50% of individuals with positive health intentions failed to act accordingly. Nevertheless, intent remains important; individuals with strong behavioral intentions tend to develop intrinsic motivation, making changes more sustainable over time (Papacharisis et al., 2003)(Van Lange et al., 2011).

In summary although intention alone does not guarantee behavior change, it is a valuable indicator of a campaign's potential effectiveness, especially when combined with a multi-faceted strategy.

2.2.3 Key Takeaways

The IACM integrates elements from TAM (usefulness, ease of use), TRA (attitudes, intentions), and IAM (argument quality, credibility), adding personal attitudes and information needs. Chu et al., 2024 confirmed that the Information Acceptance Model (IACM) effectively explains how users adopt health related infographics on social media. Perceived usefulness was a strong predictor of information adoption, while attitudes and credibility influenced behavioral intentions.

Renes et al., 2011 found that while media campaigns modestly influence behavior, success increases with supportive environments and multi-strategy approaches. Intent alone doesn't guarantee change, but remains crucial as a measurement. Thus models like IACM help explain how well crafted, credible content can trigger intent and behavior.

2.3 Sport Supplementation Sentiments

Understanding the way sentiments concerning sport supplementation are shaped is vital as these emotions shape credibility judgments and influence supplement use. These responses often reinforce pre-existing beliefs through confirmation bias or lead to overreliance on bias prone strategies like brand familiarity. Understanding these sentiment driven biases is essential for explaining why misinformation might spread, why credible advice is ignored or deemed questionable, and how to design interventions that are aware of these possible biases. The research questions guiding this part of the review are "How do prior beliefs and expectations influence the rejection or acceptance of new or conflicting information?" and "How do branding and sourcing practices influence the trustworthiness of supplementation claims?". Figure 2.2 shows the search strategy used in uncovering design principles to maximize appeal and for effective communication. Due to the sheer number of results, it is opted to review the first 50 entries.

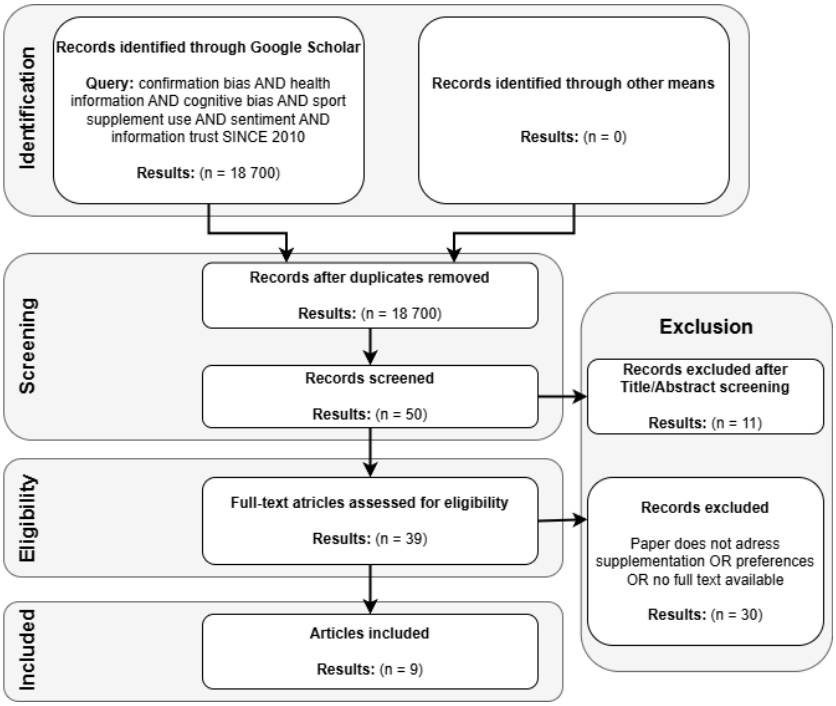

Figure 2.2: Prisma Flow Diagram Supplement Sentiment search strategy

2.3.1 Information Credibility and Supplement Types

Information credibility in sport supplementation is typically shaped by a combination of source credibility, message content, and contextual cues. A foundational model used in health communication, the Elaboration Likelihood Model (ELM), explains that users assess credibility either through critical thinking or personal belief routes (Setyadi et al., 2024). In supplementation, both routes are prominent: athletes and amateurs may critically evaluate ingredient lists or instead rely on cues like influencer endorsements or brand reputation (Catalani et al., 2021). A study by Graham-Paulson et al., 2015 found that elite athletes more often rely on scientific reasoning and peer reviewed evidence when evaluating supplements, whereas recreational users are influenced by testimonials, social proof, and aesthetic packaging.

However this does not mean that more experienced athletes make healthier choices. A study by Kristensen et al., 2024 investigated the relationship between dietary supplement use and attitudes toward doping among elite youth athletes. The researchers found that increased use of dietary supplements was associated with a higher acceptance of supplement use, which in turn was linked to more favorable attitudes toward doping. This suggests that, in this population, the decision to use supplements may be influenced more by social and psychological factors than by critical evaluation of scientific evidence, contrary to the findings by Graham-Paulson et al., 2015.

These findings suggest that while experienced athletes may engage more with scientific sources, their supplement choices are not necessarily more rational or health oriented. Instead, social and psychological factors,

such as normalization of supplement use, can override critical evaluation, indicating that credibility perceptions alone do not predict evidence based behavior.

2.3.2 Influence of Prior Beliefs and Cognitive Bias

Consumers' prior beliefs and personal fitness goals strongly influence how they interpret new information about supplements (Espeño et al., 2024). This is closely related to confirmation bias: the tendency to favor information that aligns with existing expectations or desires.

For example, someone who believes that creatine is essential for muscle gain will be more likely to trust sources confirming its benefits and dismiss articles that highlight its risks or inefficacy (Garthe & Maughan, 2018). This bias is intensified in high stakes settings, such as pre-competition periods, where users feel pressured to make fast improvements.

This is reiterated by Calella et al., 2025 who assessed gym users' knowledge, attitudes, and behaviors regarding dietary supplements. It found that their use was closely tied to beliefs about efficacy and personal fitness goals, confirming that perceived benefits often outweigh evidence based considerations.

2.3.3 Branding and Sourcing

Brand credibility significantly influences perceived trustworthiness in the supplement industry. Well known brands, especially those endorsed by sports federations or labeled "NSF Certified for Sport," are seen as more reliable, even when objective analyses show minimal differences in product quality compared to less known competitors (Maughan, 2005).

Additionally, third-party testing and transparent ingredient labeling boost credibility. Conversely, vague sourcing and flashy packaging are often treated as red flags by informed users but can still attract uninformed ones (Catalani et al., 2021).

2.3.4 Key Takeaways

Information credibility in the supplement industry is shaped by both critical evaluation and surface level cues. While some users assess ingredient lists and scientific evidence, many rely on brand reputation, endorsements, or testimonials. Elite athletes are more likely to engage with scientific sources, yet their choices are not always more rational. Frequent supplement use can normalize such behavior, making decisions more socially and psychologically driven than evidence based.

Cognitive biases further influence how consumers interpret information. Prior beliefs and fitness goals often lead users to favor content that confirms their expectations, especially under pressure. This results in choices based more on perceived benefits than on scientific accuracy.

Brand credibility also plays a key role. Products from well known brands are often seen as more trustworthy, even if quality differences are minimal. Transparent labeling and third-party testing enhance trust, while vague claims and flashy packaging can either raise suspicion or attract less informed consumers. Overall, supplement choices reflect a blend of reasoning, bias, and branding rather than pure logic.

2.4 Implications

Promoting evidence based supplement use among adolescents requires more than accurate messaging. It demands communication that is visually appealing, credible, and tailored to the audience. Infographics can be effective tools when they balance visual appeal with clarity.

Credibility and accuracy are key: infographics are trusted more when they feature professional design and cite reputable sources. Cultural and contextual relevance also enhances understanding, indicating that content must be adapted to diverse audiences.

The Information Acceptance Model (IACM) explains how adolescents adopt health infographics. Perceived usefulness is a strong predictor of adoption, while attitudes and source credibility influence behavioral intent. However, intention alone does not guarantee action. External support and environmental cues are essential for change. With proxy for this factor being shareability.

Sentiments and biases play a major role in how adolescents interpret supplement information. Prior beliefs and personal goals often lead to confirmation bias, reinforcing existing views. Branding and endorsements also heavily influence trust, sometimes more than scientific accuracy.

This review implies that for infographics to change behavior, they must combine accurate, credible content with engaging design, credible sourcing, and psychological insight. For this research, it means developing and testing infographic formats that align with these principles to evaluate their impact on adolescents' perceptions, trust, and intentions.

3

Conceptual model

This chapter presents the conceptual model using the research on how infographic design influences young individuals' acceptance of nutritional information regarding sport supplementation. The goal is to clarify the conceptual principles that explain user engagement with infographics and how these elements can shape perceived credibility, accuracy, usefulness, and shareability. As discussed in chapter 2.4 these four elements prove to be valuable predictors for information adoption and behavioral change.

3.1 Attributes and Context

3.1.1 Core Constructs

The selection of the four core constructs, credibility, accuracy, usefulness, and shareability, is grounded in the findings of the literature review presented in Chapter 2.4. These constructs emerged as recurring and significant predictors of information adoption and behavioral intent.

Together, these constructs provide a comprehensive framework for evaluating how infographic design attributes affect reception and potential behavioral outcomes in the context of sport supplementation.

- *Information Credibility* The extent to which users perceive the infographic as trustworthy.
- *Information Accuracy* The extent to which users perceive the infographic as factually accurate.
- *Information Usefulness* The perceived utility or relevance of the information in the user's personal context.
- *Information shareability* The perceived relevance of the information in the user's personal network.

These four outcomes are likely to be moderated by various attributes. The importance of these attributes may vary for each individual. The attributes included here are based on the findings from the literature review.

3.1.2 Attributes

The attributes that are included are:

- *Messaging Type* This refers to the tone and framing of the infographic (positive, negative, neutral). Studies show that message framing influences information reception and emotional engagement (Eisend, 2022). Positively framed messages are more likely to evoke favorable attitudes and behavioral intentions because they reduce negative emotions and increase emotional engagement (Bradley et al., 1992). This is particularly relevant for social media environments where users are continuously exposed to competing content and where messages that evoke emotions are more likely to capture attention and be remembered. Messaging type may also interact with prior beliefs. For example, a user with favorable attitudes toward supplements might respond more positively to benefit focused messaging whereas skeptical users may respond more to warnings or side-effects. Therefor it is expected that positive messaging typing will, in general, positively influence the four outcome variables. However, it is also expected that negative messaging will have different effects on people with a particularly positive or negative attitude towards the discussed supplement. In cases where a person might have a very positive attitude towards for example creatine, the negative messaging might be perceived as credible, but the intention to adopt might be low due to bias.

- *Branding* This refers to the origin of information presented in an infographic. In digital health communication, this typically ranges from institutional sources such as government bodies or public health organizations, to informal sources such as peers or influencers. The credibility and recognizability of the source play a critical role in how the message is interpreted by the audience (Schmidt et al., 2016). This also extends to the influencer sphere, as young people increasingly turn to influencers for health and fitness advice. While many consumers claim to be skeptical of influencer endorsements or claim that they are not influenced by them, Liu and Zheng, 2024 found otherwise. This study suggests that even when individuals recognize the persuasive intent behind influencer content, their parasocial relationships with influencers can still lead to increased purchase intentions. In other words, consumers may consciously deny being influenced by social media personalities, but their behavior shows otherwise. Due to the complexity of of influencer relations, and the mismatch between claimed skepticism and actual behavior, it is opted to use government entities, public health organizations, and no branding for this attribute. It is expected that expert based sources, such as government entities and public health organizations, are more likely to be perceived as factual and reliable. However, it is also expected that certain demographic groups, such as those skeptical of governmental entities, might rate these brands as less factual and reliable.

- *Sourcing* This refers to the source of the information presented in the infographic. Using scientific references or QR codes for health infographics serves as a useful strategy to enhance their credibility and effectiveness. These elements function as peripheral cues, signaling to viewers that the information presented is grounded in evidence based research (Salah et al., 2022). It is expected that this will play a particularly big role when the personal attitudes towards supplements and the inforgraphic sentiment don't align. As previously discussed the messaging type and attitude towards supplements are expected to play part in determining usefulness and credibility. By including sources when these two factors are misaligned for the reader, the credibility might increase.

3.1.3 Context

Protein powder and creatine are widely used in both athletic and general populations, making them very useful subjects for research in nutrition and health behavior(Reddy, 2025)(Jagim et al., 2018)(Shoshan & Post, 2021). Seen as these are the most used sport supplements, it is deemed that they are also amongst the most recognizable. Therefor, the reason of their inclusion is twofold. On the one hand most of the research population will be aware of these supplements, and on the other hand the body of research on these two supplements will be greater than on others. It is therefor chosen to include both these supplements for the infographics. The information about creatine and protein in this section serve as content foundation for the infographics used in the rating experiment. The scientific literature provides clear advantages and disadvantages for both. This makes it possible to frame the infographic content either positively or negatively. The listed benefits and downsides are not standalone variables in the model but are used to operationalize the Messaging Type attribute.

Creatine Some downsides to this supplement are:

- **Weight Gain** Creatine can cause rapid weight gain through increased water retention, which could be undesirable for athletes in weight-sensitive sports such as boxing or powerlifting. (Buford et al., 2007).

- **Muscle gain may not be as accurate as previously stated** A 2025 randomized controlled trial from the University of New South Wales found that creatine supplementation at a maintenance dose of 5 grams per day did not lead to significant increases in lean muscle mass compared to a placebo during a 12-week resistance training program. Both groups experienced similar gains, suggesting that the benefits of creatine for muscle growth may have been overestimated in earlier studies (Desai et al., 2025).

- **Digestive Discomfort** Some users report gastrointestinal issues such as stomach pain, nausea, or diarrhea when consuming creatine, particularly in higher doses or during the loading phase (Antonio et al., 2021).

Some benefits of this supplement are:

- **Explosivity** Creatine supplementation enhances athletic explosivity by increasing intramuscular phosphocreatine stores, enabling faster regeneration of ATP during short-duration, high-intensity exercise (Kreider et al., 2017).

- **Cognitive Benefits** Creatine supplementation has been shown to enhance cognitive performance, particularly under conditions of mental fatigue or stress, potentially benefiting cognitive functions such as memory and decision making (Rawson & Venezia, 2011)

- **Enhanced Recovery** Creatine supplementation has been found to reduce muscle damage and inflammation following strenuous exercise, leading to faster recovery times (Cooke et al., 2009).

protein Some downsides to this supplement are:

- **Dependence and Nutritional Imbalance** Relying excessively on protein supplements could lead to a dietary imbalance by reducing the intake of whole foods that provide a range of essential nutrients beyond protein, such as fiber, vitamins, and minerals (El Khoury et al., 2019).
- **Misleading Marketing and Ineffectiveness** Due to aggressive marketing, consumers often perceive protein supplements as necessary for achieving fitness goals, potentially leading to unnecessary financial expenditure on products that might not significantly enhance their performance compared to a balanced diet (Knapik et al., 2016).
- **Potential for Misuse and Health Risks** Many individuals may not fully understand the proper dosages and actual effects of protein supplements. Excessive intake could pose risks, including kidney damage in predisposed individuals or issues like gastrointestinal distress(El Khoury et al., 2019)

Some benefits of this supplement are:

- **Supports Muscle Growth and Recovery** Protein supplements may prove beneficial for athletes and physically active individuals as they help stimulate muscle protein synthesis and promote muscle repair and growth after exercise. Supplementation with high-quality proteins after exercise has been shown to enhance lean muscle mass development. (Morton et al., 2018)
- **May Help with Weight Management** Protein has a high satiety index, which means it can help reduce appetite and caloric intake. This makes protein supplements a useful tool for individuals aiming for fat loss or weight maintenance, particularly when used as meal replacements or snacks. (Leidy et al., 2015)
- **Supports Healthy Aging** Older adults face a natural decline in muscle mass (sarcopenia). Supplementing with protein can help preserve lean body mass and strength, especially when combined with resistance training. (Deutz et al., 2014)

These benefits and downsides may be unknown to the less informed supplement user, or might challenge their previously held notions about these supplements. Thus ultimately influence how they perceive the information the infographic conveys.

3.2 Socio-Demographics and Attitude

Including socio-demographics into the survey and model gives more insight into the composition of the sample of respondents. Furthermore, using the collected socio-demographics insights can be gained on different supplement user groups. Socio-demographics can influence the outcome variables indirectly via interactions with variables. The following socio-demographics are included in this study:

- **Age** Age is a very common socio-demographic to include(Andrews & Herzog, 1986). It is expected that younger audiences might change their intended behavior more easily than older respondents (Bongard-Blanchy et al., 2021).
- **Gender** Gender is included as women are more likely to question supplement efficacy and safety, especially when marketing emphasizes extreme physiques or performance outcomes without medical framing(Aguilar-Navarro et al., 2021). Therefor it is expected that women might score higher on credibility ratings of neutral or negative infographic messaging, compared to their male counterparts.
- **Education Level** Education level is included for a multitude of reasons. Firstly, higher education is associated with better health behaviors and outcomes(Cutler & Lleras-Muney, 2006). Secondly, education shapes decision making capabilities, risk perception, and response to policy incentives (Lochner, 2011). Finally, higher education is associated with a higher trust in science and scientists (Charron & Rothstein, 2016). Therefore it is expected that people with higher education score higher on credibility when sources are provided.

  Beyond these direct effects, education may also moderate how strongly personal attitudes influence perceptions of health information. Prior research suggests that more educated individuals may be more internally consistent in their reasoning and more confident in their beliefs. This means that when they

hold a positive or negative attitude toward a topic, they are more likely to process new information in a way that aligns with that attitude (Kahan et al., 2012). Based on this, an interaction between education level and supplement attitude is included in the model as teh literature makes it theoretically justified to test whether education moderates the effect of supplement attitude on infographic evaluations

- **Supplement Use** Supplement use is included as it serves multiple purposes. It is used as a proxy for supplement specific attitude. Furthermore, it is partly used as a proxy for determining the general attitude towards sport supplementation in general. It is expected that a higher supplement use might influence how a person scores on the intention to adopt information, and the usefulness. This is because the information presented by the infographic might already be known to the reader, or because confirmation bias might play a role in how the information is received.
- **Gym Experience** The reason for inclusion of this demographic is closely linked to the supplement use. it is once again used as a proxy for determining the general attitude towards sport supplementation in general. It is reasoned that more gym experience leads to higher supplement exposure, which in turn affects the attitude towards them(Morrison et al., 2004).
- **Social-Media use** This demographic is used as a measure of supplement exposure. The use of social-media and following of "fitfluencers" may increase a persons exposure to supplement related content. This demographic is used as a proxy for measuring attitude, as well as the attitude of peers.
- **Personal Attitude towards Supplements** As discussed in chapter 2.4, personal attitude towards supplements or supplementation in general has a big impact on perception. Therefor by measuring the attitude a person has, possible deviations from expected behavior might be explained.
- **Peer Attitude towards Supplements** As stated by Renes et al., 2011, ones environment has significant influence on how a person perceives and uses information. By gathering peer supplement use information, we can more accurately estimate the general attitudes towards supplementation by the respondents peers. This estimation of attitude is furthermore supplemented by the social media use and gym experience demographics.

3.3 Conceptualization

The variables discussed in the previous sections are integrated into the theoretical framework. This framework is presented in figure 3.1 and serves as the foundation for the development of the rating experimen and shows the hypothesized relationships between personal characteristics, infographic attributes, perception variables, and behavioral intention. Dotted lines indicate indirect effects, such as the influence of personal characteristics and attitudes on the perception of infographic content. Solid arrows illustrate the direct relationships between variables.

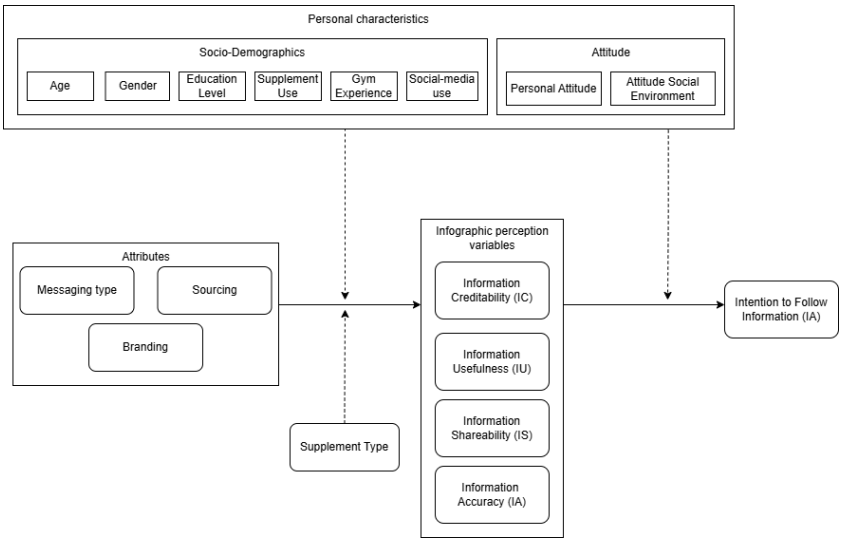

Figure 3.1: Conceptual Diagram

4

Methodology

This chapter introduces the methodology that will be applied for answering the research questions. First, chapter 4.1 discusses the construction of the infographics. Secondly chapter 4.2 highlights experiment set-up. Thirdly, chapter 4.3 shows the survey set-up. Afterwards chapter 4.4 discusses the data collection. Finally chapter 4.5 discusses the steps taken to determine personal and social attitude towards supplmentation.

4.1 Infographic Set-up

The base infographic was constructed using the design principles discussed in chapter 2. The basic attribute design elements consist of 3 benefits and 3 downsides for each supplement, sources for those claims using either a QR code or references to literature, and branding with either the "Rijksoverheid" logo or the "Voedselcentrum" logo. Color theory was used in the construction of the messaging type attribute, where positive information has a blue background and negative information has a red background. This is done as blue is deemed to be a calming and trustworthy color, thus being positive. Whereas red is deemed an aggressive and intense color, thus being negative(Wegman & Said, 2011). This is done to further distinguish the positive and negative information snippets, since some information may be perceived as negative by one person but as positive by another. An example of the infographics used can be found in figure 4.1. All constructions can be found in appendix A

Figure 4.1: Constructed Infographic

4.2 Experiment Set-up

To assess how different infographic design attributes influence perception, the experimental setup is includes five separate ratings corresponding to one of the key perception outcomes: Information credibility (IC), information accuracy (IC), information usefulness (IU), information shareability (IS), and intention to follow, as discussed in chapter 3.1. This approach allows for a more focused analysis of each dependent variable. Which in turn allows for more focused policy recommendations

First participants are exposed to a series of 6 infographics that vary systematically in their design attributes. All within the context of either protein supplements or creatine supplements. The attributes and their levels can be found in table 4.1. After viewing each infographic, respondents are asked to rate it in relation to one of the outcome variables. This design allows for capturing perception effects specific to each dependent variable.

Table 4.1: Attributes and Levels

Attribute	**# Levels**	**Attribute levels (Coding: explanantion)**
Messaging type	3	0: Negative, 3 out of 4 information pieces highlight downsides Title is discouraging 1: Neutral, 2 out of 4 information pieces are positive 2 are negative Title is neither discouraging or encouraging 2: Positive, 3 out of 4 information pieces are positive Title is encouraging
Branding	3	0: No branding 1: Government entity logo 2: Public health entity logo
Source	3	0: No source 1: Link and QR-code to website 2: Research paper reference

As there are 3 attributes with 3 levels for each context, the total number of possible constructions would be 54. As this is too many constructions for any reasonable survey, basic plan 2 for constructing profiles is used to shrink the number of constructions. This leaves 9 infographic constructions for each supplement type, for a total of 18 constructions. These were then blocked in groups of 3 in accordance with the basic plan. It should be noted that the negative creatine information piece "Muscle gain may not be as accurate as previously stated" is included in each creatine construction. It has been opted to this as it is expected that this information is controversial for a large number of supplement users. This because the study is very recent and goes against popular opinion. The expectation is that this information would sway the messaging type ratings to heavily if only included in certain constructions. Thereby leading to wrong interpretations and conclusions.

Participants are shown a total of six infographics, one block of three related to creatine and one block of three related to protein supplementation. They were randomly assigned to view either the creatine or protein block first. Within each block, the three corresponding infographics were presented in random order. The order in which the two supplement blocks were presented was randomized across participants to minimize order effects and reduce the risk of priming or fatigue influencing the results. This randomization helps ensure that differences in perception between the two contexts are not systematically biased by presentation sequence. However, since participants rated infographics on two distinct supplement topics, pre-existing attitudes toward each supplement could still influence their responses independently of infographic design. To account for potential bias introduced by varying attitudes toward creatine and protein, participants' individual attitudes towards supplements are measured and included in the analysis as moderators.

To analyze the relationship between the infographic attributes and the dependent variable, linear regression analysis is employed. This method is appropriate given the continuous nature of the dependent variables and the need to quantify the strength and direction of the influence of each attribute. This analysis can also account for the individual characteristics of respondents by including them as covariates in the model. These individual factors can't be varied by design, but only be inferred by the respondents. Therefor they are subsequently incorporated into the regression models as explanatory variables.

These personal characteristics are essential for understanding differences in how people view the information and how it affects behavioral intent. This approach enhances the efficacy of the findings by highlighting which message designs are most effective for different target populations.

4.3 Survey structure

The survey consists of four parts. First the introduction is given and consent is requested, after this socio-demographic variables are collected, after which the participant is shown a series of 6 infographics. The way these infographics are selected is as follows. First a respondent is randomly assigned to either the protein of creatine supplement context. They are then assigned 2 out of 3 of the blocks discussed in chapter 4.2. For each of the infographics they will be asked to answer questions related to the dependent variable discussed in 3.1. Finally they will be asked to answer questions regarding their personal attitude towards supplements, as well as questions regarding the attitude of their peers towards sport supplements. The attitude measurement is further discussed in chapter 4.5. An overview of questions can be found in Appendix B: Survey questions and a copy of one of the survey versions in Appendix C: Final Survey.

4.4 Data collection

The survey was constructed using Qualtrics and distributed via various channels. The data collection took place from 26-05-2025 until 10-06-2025. Responses were gathered on social media platforms, QR-codes posted in 2 local gyms, and flyers handed out at different local gyms. In the end a total of 91 valid responses were gathered. Responses were deemed invalid if the survey was not fully completed, or if the fill-in time was shorter than 5 minutes. What stood out about the collection distributions was that the majority of responses came through social media channels or personal communications. In contrast, only 2 responses resulted from the approximately 200 flyers handed out, and just 5 responses came from the QR codes that were posted.

4.4.1 Target population

The target population for this survey consists of people who reside in the Netherlands and have at least some experience with fitness or regular physical activity. Whilst younger participants are of special interest due to their impressionability and susceptibility to messages related to supplements and gym culture, older participants are not excluded as they may provide valuable insights. Participants will be recruited through personal networks, including friends, peers, and contacts with local gym owners who will help distribute the survey. This approach will most likely result in a convenience sample. Whilst this is efficient for reaching the target group, it is limited in representativeness, as it may not accurately reflect the wider population.

4.4.2 Sample characteristics

Table 4.2 gives an overview of the sample characteristics in terms of sociodemographic factors. The reference population statistics, consisting out of inhabitants of the Netherlands, are retrieved from CBS, 2021a and CBS, 2021b. The gender distribution in the sample skews slightly in favor for the males compared to the population. Furthermore it can be seen that 20-40 year olds are quite substantially overrepresented in the sample, this is likely due to the way the survey was distributed. As briefly touched upon in section 4.4, the main way people found the survey was through social media. Social media in general tends to have a younger user base, this is further amplified by the social circle of the author who tends to interact with people around his age group. Another notable outlier in the sample demographics is the education level. In the sample, 63,7% completed an HBO bachelors degree or higher, compared to 36% in the population (CLO, 2023). Finally, 54,9% of the sample population uses sport supplementation at least 1-2 times a month, considerably higher compared to 12% in the reference population (Multiscope, 2024). This is not entirely unexpected as the responses were gathered in places and social circles who actively participate in fitness. For the purpose of the linear regression model, the variable for education has been recoded into lower education and higher education. Social media use was combined with online supplement exposure and classified into 3 groups ranging for low to high exposure. Personal and peer supplement use were grouped based on usage frequency and also grouped in 3 groups.

Table 4.2: Sample characteristics

Background variable	Category	Observations #	Relative %	Reference population
Gender	Male	48	52,7%	49,7%
	Female	42	46,2%	50,3%
	I prefer not to anwser	1	1,1%	
Age	Under 20	6	6,6%	21,0%
	20–40	65	71,4%	26,0%
	41–65	18	19,8%	33,0%
	66–80	2	2,2%	15,0%
	Average: 31.58			
Education	Secondary education	4	4,4%	
	Pre-university education (VWO)	4	4,4%	
	Intermediate vocational education (MBO)	25	27,5%	
	Higher professional education Bachelor's level (HBO Bachelor)	36	39,6%	
	University Bachelor's level (WO Bachelor)	6	6,6%	
	University Master's level (WO Master)	15	16,5%	
	Doctorate (PhD)	1	1,1%	
Ethnicity	Dutch	89	97,8%	86,0%
	Other European	1	1,1%	
	Caribian	1	1,1%	
Social-media use	1-2 hours	6	6,6%	
	3-4 hours	13	14,3%	
	5-6 hours	16	17,6%	
	7-8 hours	15	16,5%	
	9-10 hours	16	17,6%	
	11-12 hours	7	7,7%	
	13-14 hours	4	4,4%	
	14+ hours	14	15,4%	
Activity level	0 hours	4	4,4%	
	1-2 hours	19	20,9%	
	3-4 hours	22	24,2%	
	5-6 hours	15	16,5%	
	7-8 hours	15	16,5%	
	9-10 hours	9	9,9%	
	11-12 hours	6	6,6%	
	13-14 hours	1	1,1%	
Frequency supplement use	Never	41	45,1%	
	Rarely (1-2x per month)	9	9,9%	
	Regularly (1-2x per 2 weeks)	5	5,5%	
	Often (1-2x per week)	6	6,6%	
	Very often (3-5x per week)	11	12,1%	
	Daily (1x per day)	19	20,9%	
Survey found through:	Social media	51	56,0%	
	QR-Code	5	5,5%	
	Flyer	2	2,2%	
	Word of mouth	28	30,8%	
	Other	5	5,5%	

4.4.3 Experiment characteristics

Not every respondent received the same version of the survey. Because there were 18 different infographic designs, including them all would have made the survey too lengthy. Instead, each participant was assigned 2 blocks containing 3 infographics each, drawn from a total of 6 possible blocks. The survey was designed to distribute these blocks as evenly as possible among respondents. However, block assignments were made regardless of whether the survey responses were ultimately valid. As a result, after removing invalid responses the final distribution of blocks was nearly even. Figure 4.2 shows the distribution of assigned infographic constructs.

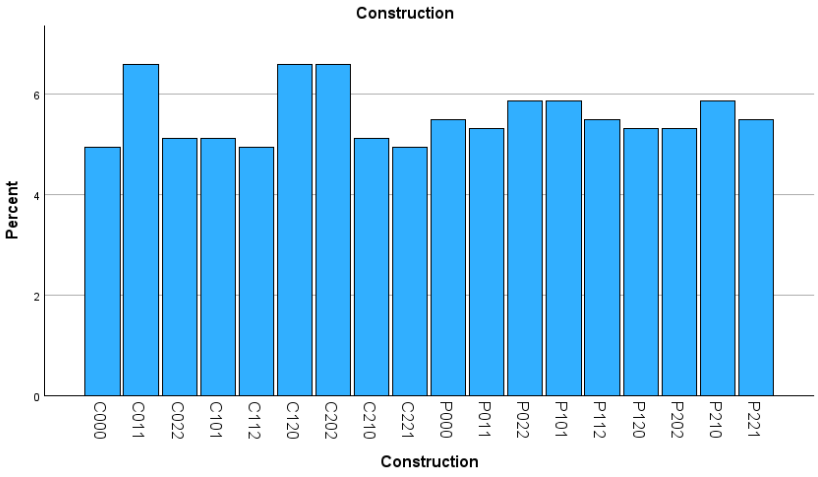

Figure 4.2: Distribution of constructs

Table 4.3 shows the average rating across all infographics. The mean rating for both Credibility and Accuracy are higher than the expected value 3, whilst both Shareability and Adoption score significantly lower. From this is can be gathered that on average, the infographics were deemed mildly credible and correct. Because the infographics were constructed in a way to boost both these attributes, this is not entirely unexpected. However it is very notable that shareability is staggeringly low, with a mean score of only 1.68. This shows that people's likeliness to share an infographic is low regardless of its specific content. The same holds true for intention to adopt the information, however this could be due to people rigidity when it comes to changing existing believes, as discussed in section 2.2.

Table 4.3: Infographic Ratings

	Credibility	Accuracy	Usefulness	Shareability	Adoption
N	546	546	546	546	546
Mean	3.25	3.42	3.02	1.68	2.13
Std. Deviation	1.494	1.385	1.388	1.469	1.630

4.5 Attitude measurement

The survey posed 9 questions which were aimed at uncovering specific sentiments toward supplements. The questions and the expected associated sentiments are shown in table 4.4.

Table 4.4: Statements and expected sentiment group

St #	Statement	Expected sentiment group
1	Protein shakes are a necessary supplement for anyone doing strength training.	Believe/Trust in supplements
2	Most sports supplements have a proven positive effect on performance.	Believe/Trust in supplements
3	You can just as easily get everything you need from regular food instead of using supplements.	Believe/Trust in supplements
4	I take supplements such as pre-workout without knowing exactly what is in them.	Caution/Critical use
5	I am concerned about possible side effects of pre-workouts.	Caution/Critical use
6	I trust the safety of supplements sold at the gym.	Trust in supplement brand
7	I always check the ingredients list before I use a sports supplement.	Caution/Critical use
8	I feel pressure from others to use supplements in my sports environment.	Peer sentiment towards supplements
9	I believe that brands of sports supplements make honest claims about their products.	Trust in supplement brand

The statements were rated on a 5 point likert scale. As the goal is to uncover an attitude or sentiment, principal axis factoring is used.

4.5.1 Exploratory factor analysis

Initially all statements were grouped together to examine the commonalities. Exploratory factor analysis was used to identify underlying relationships between the items and to determine whether they measured a single construct or multiple constructs. Throughout this process, items that demonstrated low factor loadings or did not contribute meaningfully to the overall factor structure are systematically eliminated. To further examine the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were conducted. The results of this test are shown in table 4.5

Table 4.5: KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,771
Bartlett's Test of Sphericity	Approx. Chi-Square	541,882
	df	15
	Sig.	<.001

These results indicate that the correlations between items are sufficiently large for factor analysis and thus support the decision to proceed with exploratory factor analysis. A table of the remaining statements and their factor loading can be found in table 4.6.

Table 4.6: Factor loading

St #	Statement	Factor loading
9	I believe that brands of sports supplements make honest claims about their products.	,643
6	I trust the safety of supplements sold at the gym.	,635
2	Most sports supplements have a proven positive effect on performance.	,559
8	I feel pressure from others to use supplements in my sports environment.	,510
1	Protein shakes are a necessary supplement for anyone doing strength training.	,506
4	I take supplements such as pre-workout without knowing exactly what is in them.	,435

The analysis extracted a single factor, which accounted for a substantial proportion of the variance in the items. All items demonstrated moderate to strong factor loadings on the single extracted factor, ranging from .435 to .643. Based on the content of the statements and the pattern of factor loadings, the single factor was interpreted as representing a general attitude towards sports supplements. While istatements 9 and 6 refer to trust in brands or safety, others capture beliefs about effectiveness, perceived necessity, social pressure, and behavioral tendencies. These elements go beyond the concept of trust and are more consistent with the multifaceted structure of attitudes, as outlined in models such as Ajzen's Theory of Planned Behavior (Ajzen, 1991). The extraction converged in six iterations, indicating a stable solution.

To assess the internal consistency of the scale measuring attitudes and trust toward sports supplements, Cronbach's alpha was calculated for the six statements. The analysis shows a Cronbach's alpha of .715, indicating acceptable reliability for the scale. Thus the factor analysis shows that these 6 statements form a single factor structure. The factor score will be labeled attitude toward sport supplements.

The three remaining statements did not load sufficiently on the extracted factor and were therefore excluded from the final scale. This is further discussed in the limitations section. The most notable of these exclusions is statement 3: "You can just as easily get everything you need from regular food instead of using supplements.". As this was unexpected, it was opted to delve further into the reactions to this statement. An independent samples t-test was conducted to compare agreement with the statement 3 between supplement users and non-users. The results showed a significant difference between the two groups (p=.028). Non/low users reported a higher mean level of agreement (M=3.86, SD=0.92) compared to regular/high users (M=3.68, SD=0.95). Although this difference was statistically significant, the effect size was small. These results imply that both people with high personal supplement use, as well as low personal supplement use, were of the opinion that there is no explicit need for supplementation.These results indicate that even individuals who use supplements tend to agree that regular food can provide all necessary nutrients.

4.5.2 Supplement exposure

Supplement exposure refers to the extent to which respondents come into contact with sports supplements through both online channels and their social environment. To assess this, online exposure was measured by combining two indicators, the respondent's general use of social media and the frequency with which they encounter content related to sports supplements on these platforms. This reflects not only the amount of time spent online but also the likelihood of encountering supplement related content. In addition to online exposure, peer influence was incorporated by measuring how frequently individuals reported that people in their immediate sports environment use supplements. These three indicators were combined into a single sum score representing overall exposure. Based on the total score and its possible range, participants were then categorized into three groups using predefined cutoffs: no/low exposure, medium exposure, and high exposure. This composite measure captures the individuals exposure to sports supplements.

4.6 Attribute Coding

When selecting an appropriate regression model, it is essential to consider the measurement level of the target variable. Although the outcome variable, a numerical rating, could be regarded as continuous, the experiment used a 7-point scale to assess participants' perceptions of the infographics' credibility, accuracy, usefulness, shareability, and intention to use. This scale is technically ordinal. However given that the variable approximates a continuous distribution, the data was initially analyzed using standard linear regression models. All regression analyses were conducted using IBM SPSS Statistics 29.0.

Before the regression model can be estimated, the attributes have to be coded as they are categorical. Thus they are not linear effects, as public health entity branding does not necessarily constitute twice the government branding utility. Therefor effects coding is applied. The coding of the main attributes and other variables can be seen in table 4.7.

The collected socio-demographic and other personal characteristics can also be included in the model. Most of these were collected on an ordinal scale. To reduce the number of parameters, these variables are recoded into reduced level metrics.

4.6.1 Expectations

Several expectations can be formulated regarding the parameters to be estimated in this study. The main attributes, messaging type, branding, and source, are anticipated to be the primary determinants of the credibility, accuracy, usefulness, shareability, and intention-to-use ratings for the supplement infographics. As the expectation is that infographics presenting information in an encouraging manner, with credible branding and robust sourcing, will be rated more favorably across outcome variables.

Some exceptions and nuances are expected. For example, a negative or discouraging messaging type (coded as 1 for discouraging) may be associated with lower credibility or intention to use (Mutti-Packer et al., 2017), and thus might yield a negative parameter. Similarly, the absence of a source or branding is expected to have a negative effect on ratings, as it may reduce perceived trustworthiness.

Including socio-demographic and background variables such as gender, education, personal and peer supplement use, attitude towards supplements, and online supplement exposure, allows for examination of whether certain groups systematically rate the infographics differently. Previous research suggests that women may be more skeptical of supplement advertising and may perceive online health information as less credible than men (Aguilar-Navarro et al., 2021). Higher education levels may be associated with greater health literacy and skepticism, potentially resulting in lower ratings for usefulness, they may however rate have a higher credibility rating. Individuals who personally use supplements, or whose peers do, might rate the encouraging infographics more positively and discouraging infographics negatively, due to personal bias.

Regarding interaction effects, it is plausible that the impact of infographic attributes depends on the respondent's background. For example, respondents with higher supplement use rates might be less influenced by branding or source, or might respond more positively to encouraging messaging. On the flip side, individuals with higher education levels may be sensitive to the presence of academic references as a source, resulting in stronger effects for that attribute within this subgroup. Additionally, prior exposure to online supplement information might moderate the effects of source credibility or branding on outcome ratings.

Finally, differences in ratings between protein and creatine may arise because protein is more widely accepted and familiar as a supplement, often seen as a basic nutritional aid. In contrast, creatine is sometimes viewed as more specialized or controversial, leading to more skepticism and potentially lower ratings across the board (Jovanov et al., 2019).

Table 4.7: Coding of included attributes

Attribute	Level	Coding	Effects coded	
Main attributes			Parameters	
Messaging type			Discouraging	Encouraging
	Negative	0	1	0
	Neutral	1	-1	-1
	Positive	2	0	1
Branding			Government	Public
	None	0	-1	-1
	Government entity	1	1	0
	Public health organisation	2	0	1
Source			Internet	Academic
	None	0	-1	-1
	QR-code	1	1	0
	Academic reference	2	0	1
Supplement type			Creatine	
	protein	0	-1	
	Creatine	1	1	
Personal Characteristics			Parameters	
Gender			Female	
	Female	1	1	
	Male & Other	0	-1	
Education			HighEdu	
	HBO Bachelor & higher	1	1	
	Else	0	-1	
Age			Age	
	Complete range		Real values	
Personal supplement use			ModPersUse	High personal use
	No / low use	0	-1	-1
	Moderate use	1	1	0
	High use	2	0	1
Peer supplement use			ModPeerUse	High peer use
	No / low use	0	-1	-1
	Moderate use	1	1	0
	High use	2	0	1
Online supplement exposure			ModExp	HighExp
	No / low exposure	0	-1	-1
	Moderate exposure	1	1	0
	High exposure	2	0	1
Activity Level			ModAct	HighAct
	No/Low activity	0	-1	-1
	Moderate activity	1	1	0
	High activity	2	0	1

5 Results

This chapter analyses the results of the survey. Section 5.1 discusses the results for the credibility rating, section 5.2 covers the results for the accuracy rating, section 5.3 discusses the results for the usefulness rating, section 5.4 shows the results for the shareability rating, section 5.5 discusses the intention to follow rating, and finally section 5.6 summarizes the findings from all ratings. Importantly, while statistical indicators such as p-values were considered for the regression models, they were not treated as a strict boundary for inclusion or exclusion. As highlighted by Amrhein et al., 2019, the dichotomization of results into 'significant' and 'non-significant' can distort scientific inference. Therefor the effect sizes, significance, and direction will all be considered when judging effects. However, since statistical significance is not entirely without value, a more flexible evaluation threshold of $p < 0.25$ was applied. This approach allows greater flexibility in identifying potentially meaningful relationships, while still retaining a reasonable degree of statistical rigor in the analysis.

To account for potential differences between the two supplement context, the dummy variable for creatine was included in the regression models. This approach allows for a difference in the intercept, meaning it captures variation in the baseline perception ratings across supplement types. However, including a dummy alone assumes that all other coefficients have the same effect regardless of supplement context.

To ensure that this assumption holds, both the constant term and the interaction effects between supplement type and the main attributes were tested prior to pooling the data. Interaction terms between creatine and the attirbutes were introduced to assess whether the effect of the infographic attributes differed significantly between the creatine and protein.

Only when these interaction effects were found to be non-significant was pooling across supplement types considered justified. In cases where interaction effects did appear to influence the results, separate models were estimated for each supplement context.

5.1 Credibility

The ratings across the 2 supplement contexts were evaluated and pooled based on the (lack of) findings. For the initial model, only the main attributes (supplement type, messaging type, source, and branding are included. The results are presented in table 5.1.

Table 5.1: Coefficient Estimates Credibility Main Attributes

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	3,249	,063		51,600	<.001
	$MT_{Discouraging}$	-,130	,089	-,071	-1,458	,145
	$MT_{Encouraging}$	,084	,089	,046	,943	,346
	$BR_{Government}$	,186	,089	,102	2,086	,037
	BR_{Public}	,187	,089	,102	2,098	,036
	$SR_{Internet}$	,144	,089	,079	1,614	,107
	$SR_{Academic}$	,043	,089	,023	,481	,631
	Creatine	-,029	,063	-,020	-,465	,642
	R^2	,042				
	Adj. R^2	,030				

The regression analysis reveals that among the infographic attributes, branding had the clearest influence on perceived credibility. Specifically, both government and public branding were associated with higher credibility scores compared to the reference category, no branding. These effects, reflected by positive coefficients (B =

0.186 and 0.187 respectively), suggest that audiences view information from government or public sources as more credible. As the coefficients are effect coded, this means that the absence of a brand has an effect of -0.186-0.187 = -0.373. Thus the absence of a brand has a significantly bigegr negative impact on the rating. Furthermore, it should be noted that the effect of both brands do not differ much and thus have largely the same impact compared to no branding. As the significance of these attributes are below P = 0.05 and they have the largest effect size, it is quite safe to state that these attributes have a statistically significant effect on credibility ratings.

Similarly, QR-codes trended positively, and academic sources also trended slightly positive. The findings surrounding the QR-Code is also partly supported by media literacy research, which suggests that source transparency and the opportunity for direct verification contribute to perceived trustworthiness (Metzger & Flanagin, 2013). Whilst not being strictly statistically significant, the effect is of decent enough size and is trending towards significance in the classical sense. Therefor this attribute is deemed to be of importance to the credibility rating. In relation to the academic sourcing, it is not controversial to claim that they don't influence credibility ratings on their own. The effect size is small, and very statistically insignificant. It is however expected that highly educated individuals will rate stronger on this attribute due to familiarity with the sourcing style and higher trust in academic sources. This interaction will therefor be included in the next model.

In contrast, messaging type showed much weaker or uncertain effects. For example, discouraging messaging was associated with a reduction in perceived credibility, while encouraging messaging showed a minor increase. This is in line with the expectations based on the literature review in section 2. However, encouraging messaging showed only a minor increase paired with low statistical significance. Therefor it is argued that this attribute doesn't influence the credibility rating as much as its discouraging counterpart. It is however expected that this will change when introducing personal use and attitude as interactions. This due to the tendency towards confirmation bias as discussed in the literature review. These interactions will included in the next model. Discouraging messaging did show a moderate effect on the credibility rating. Once again it trended towards statistical significance, implying that it might have an effect despite its uncertainty.

The supplement type, represented in the table by creatine, also had a very small and uncertain effect on credibility, with estimates close to zero. Therefor the chance that there is a meaningful difference between the credibility rating of the 2 supplements is deemed highly unlikely.

The model accounted for approximately 4% of the variance in credibility ratings (R^2 = .042), indicating a small amount explanatory power. Most of the variation in credibility perceptions is likely attributable to factors not included in the current model or heterogeneity in answers. To further investigate this, the socio-demographics as well as interaction effects are added to the model. There were a large number of interaction effects included in the model. The results are presented in table 5.2.

Table 5.2: Coefficient Estimates credibility

Model		Unstandardized Coefficients	Standardized Coefficients			
		B	Std. Error	Beta	t	Sig.
	(Constant)	3.982	,175		22.707	<.001
Main Attributes	$BR_{Government}$	,176	,087	,096	2,020	,044
	BR_{Public}	,194	,087	,106	2,219	,027
	$SR_{Internet}$	,151	,076	,083	1,994	,047
	$MT_{Discouraging}$	-,132	,078	-,072	-1,680	,093
Socio-demographics	Age	-,020	,005	-,164	-3,763	<.001
	Female	-,115	,062	-,077	-1,861	,063
	Moderate Peer Use	-,190	,115	-,071	-1,650	,100
	High Activity level	-,384	,238	-,069	-1,615	,107
Interaction effects	HighEdu_SupAtt	,148	,076	,082	1,953	,051
	SupAtt_$BR_{Government}$	-,226	,102	-,106	-2,210	,028
	SupAtt_BR_{Public}	,179	,102	,084	1,754	,080
	HighEdu_$SR_{Academic}$	,169	,087	,092	1,945	,052
	HighEdu_$SR_{Internet}$	-,142	,090	-,078	-1,586	,113
	Moderate personal use_$MT_{Encouraging}$	-,127	,096	-,057	-1,325	,186
	R^2	0,115				
	Adj. R^2	0,090				

Focusing on the socio-demographic variables, age clearly stands out as an influential factor in shaping perceptions of credibility. The negative coefficient for age (B = -0.020, $p < 0.001$) suggests that older respondents systematically rate infographics as less credible. As discussed in section 3.2 older individuals may approach information with greater skepticism, potentially due to a higher degree of stubbornness when it comes to evaluating new information. This generational difference in trust could also reflect broader societal patterns, where younger audiences, having grown up with digital media, are generally more accepting and less critical of online content. Female also trends in a negative direction (B = -0.115, p = 0.063), implying that women may be more critical or less trusting of infographic content than men. Although this effect does not reach traditional levels of statistical significance, its direction and magnitude warrant consideration. This is in line with the expectations as a result of the literature review.

Looking at social context variables, both moderate peer use (B = -0.190, p = 0.100) and high activity levels (B = -0.384, p = 0.107) are associated with lower credibility ratings, though these effects remain below conventional significance thresholds and should be interpreted with caution. This could stem from greater exposure to a wide range of information and a resulting familiarity with the information. These groups may be more confident in their ability to judge information independently, leading them to be more skeptical of material that appears overly simplistic or generic.

Turning to the interaction effects, several notable patterns emerge. The interaction between high education and supplement attitude (HighEdu_SupAtt) is positive (B = 0.148, p = 0.051), indicating that highly educated individuals who also have a positive attitude toward supplements tend to perceive infographics as more credible. Although the p-value hovers just above the conventional threshold, the size and direction of this effect suggest that this relationship likely meaningful. This may be due to the fact that higher education equips individuals to critically evaluate health related information. However when this is paired with an existing favorable view of supplements, the perceived credibility of the content is further amplified. These respondents may be more open to evidence or claims that align with their personal beliefs and values, especially when they feel confident in their own ability to discern quality information.

A contrasting pattern is seen in the interaction between supplement attitude and government branding (SupAtt_BR_Government) revealing a negative coefficient (B = -0.226, p = 0.028). This effect is statistically significant and suggests a somewhat counterintuitive outcome. Among respondents who hold a favorable attitude towards supplements, government branding actually decreases the perceived credibility of infographics. This is especially noteworthy when looking at the potential effect sizes. A person with a negative supplement attitude, with for example a factor score of -1, the effect of government branding is: $0.176 + (-1 \times -0.226) = 0.402$. Whereas a person with a positive attitude, for this example 1, the effect is: $0.176 - 0.226 = -0.050$. One possible explanation for this could be skepticism or mistrust toward government involvement in supplement promotion. Especially among those who already have strong, positive attitudes about supplements. For this group government branding may trigger suspicion that the information is overly regulated, or at odds with personal autonomy in health choices. Whereas people with more negative attitudes towards might place more trust in government information,a s they might be less critical of the information.

on the flip side, the interaction between supplement attitude and public branding (SupAtt_BR_Public) is positive (B = 0.179, p = 0.080), though less certain in statistical terms. Here individuals who view supplements positively appear to assign greater credibility to content when it is associated with public branding. This could indicate that public organizations are seen as more neutral or trustworthy compared to government entities, especially by those already inclined to favor supplements. However for the purpose of this research this effect is deemed to be more likely due to general government mistrust, rather than public entity trust. Therefor it is not deemed an extremely influential effect.

Fianlly, the interaction between high education and academic sources (HighEdu_SR_Academic) show a positive coefficient (B = 0.169, p = 0.052). This finding suggests that highly educated respondents place greater credibility in infographics citing academic sources. Although the effect does not reach strict significance, its direction and size align with expectations that educational background heightens appreciation for academic authority and referencing standards. On the flip side, The interaction between high education and internet sources (HighEdu_SR_Internet) show a negative coefficient (B = -0.142, p = 0.113) suggesting a higher mistrust towards internet sources. Although not traditionally significant, within the experiment context this points to a clear preference in source formatting among differently educated people.

Taken together, these interactions reveal that the effects of branding, sourcing, and personal attitudes are not uniform across the population. Instead, they vary based on individuals' prior beliefs and demographic background. The model explains approximately 12% of the variance in credibility ratings, which represents a substantial increase over the previous model, yet still leaves most variance unexplained. Further underscoring the complexity of credibility judgments.

5.2 Accuracy

The accuracy rating reflects participants' perceptions of how factually correct and reliable the information presented in the infographics is. It is expected that infographics featuring government or public health branding, as well as clear source references, will be rated as more accurate. Additionally, participants with greater prior exposure to supplement information may be more privy to the information presented, leading to a higher rating. The model including the main attributes is shown in table 5.4. A full model was estimated, including all main attributes and their interactions with the supplement context.

Table 5.3: Coefficient Estimates Main Attributes accuracy

Model	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	3,418	,059	57,926	<.001	<.001
	Crea_MT$_{Discouraging}$	,099	,084	,059	1,187	,236
	Crea_MT$_{Encouraging}$	,026	,084	,015	,307	,759
	Crea_BR$_{Government}$	-,059	,084	-,035	-,706	,480
	Crea_BR$_{Public}$	,071	,084	,042	,854	,393
	Crea_SR$_{Internet}$	,032	,084	,019	,379	,705
	Crea_SR$_{Academic}$	-,126	,084	-,074	-1,509	,132
	Creatine	-,147	,059	-,106	-2,483	,013

The results show that on average infographics concerning creatine were rated as less accurate than those concerning protein. Looking at the effect sizes and significance of the interactions, the discouraging messaging type and the academic sourcing also show variation. Therefor it cannot be argued that the observations can be pooled. As such they are each evaluated separately. One possible explanation is that the infographic for creatine referenced a recent study suggesting that creatine may be less effective than previously believed, which contrasts with prevailing public opinion. This discrepancy may have contributed to lower perceived accuracy for the creatine infographic. This second model estimated will include all infographic attributes, regardless of statistical significance. The detailed results for protein and creatine are presented separately in Table 5.4.

Table 5.4: Coefficient Estimates Protein & Creatine infographics

Model	Unstandardized Coefficients		Standardized Coefficients		Suppelement = Protein	
		B	Std. Error	Beta	t	Sig.
	(Constant)	3,564	,080		44,683	<.001
	MT$_{Discouraging}$	-,170	,113	-,104	-1,501	,134
	MT$_{Encouraging}$	,029	,113	,018	,255	,799
	BR$_{Government}$	,210	,113	,128	1,857	,064
	BR$_{Public}$	,073	,113	,044	,643	,521
	SR$_{Internet}$	,121	,113	,074	1,070	,286
	SR$_{Academic}$	,139	,113	,085	1,227	,221
	R^2	,052				
	Adj. R^2	,030				
Model	Unstandardized Coefficients		Standardized Coefficients		Suppelement = Creatine	
		B	Std. Error	Beta	t	Sig.
	(Constant)	3,271	,085		38,449	<.001
	MT$_{Discouraging}$	-,002	,121	-,001	-,015	,988
	MT$_{Encouraging}$	,110	,121	,063	,905	,366
	BR$_{Government}$	,085	,121	,049	,702	,484
	BR$_{Public}$	,233	,121	,134	1,919	,056
	SR$_{Internet}$	,176	,121	,102	1,450	,148
	SR$_{Academic}$	-,088	,121	-,051	-,727	,468
	R^2	,037				
	Adj. R^2	,016				

Separate regression analyses were conducted for protein and creatine infographics to examine predictors of perceived accuracy. In the model focusing on protein supplements three attributes, government branding,

neutral messaging and discouraging messaging, emerge as particularly noteworthy in shaping credibility perceptions.

Government branding displays the largest directional effect among the variables tested (B = 0.210, p = 0.064). This positive coefficient suggests that infographics branded by government sources are generally regarded as more credible, even though the effect narrowly misses traditional levels of statistical significance. The size of this effect, coupled with its clear direction, indicates that government endorsement may play a meaningful role in building trust around protein supplement information. This aligns with the expectation that government agencies, by virtue of their authority and perceived impartiality, can lend credibility to health-related communications, especially in domains where audiences may seek reassurance about safety or efficacy.

Discouraging messaging stands out for its negative association with credibility (B = -0.170, p = 0.134). Although this effect also does not cross the conventional significance threshold, its magnitude suggests a potentially important pattern. This being that infographics framed in a discouraging manner tend to be viewed with more skepticism or lower credibility compared to other messaging types. This tendency is consistent with prior findings that negatively framed health messages can sometimes backfire, especially among audiences who may already have a neutral or positive view of the subject. It should further be noted that the effect size of neutral branding is larger than

When examining the creatine infographic only public branding emerges as a potentially influential attribute, with a positive coefficient (B = 0.233, p = 0.056). It might be argued that internet sourcing might also potentially influence the accuracy rating, as it has a comparable effect size and okay significance. This might be due to the ease of access to the source of the controversial information presented by the creatine infographic.

The explained variance for both models is low, indicating that there are factors at play that were not captured. To mitigate this, several interaction effects are included. Of special interest are the interactions related to supplement attitude and education level for the creatine infographic. This is due to the expectation that people with a more favourable attitude will rate contrasting information as less credible, whilst higher educated people may rate the accuracy higher based on the academic source. For the protein infographic these same interactions are of interest. The models were again separated based on supplement type because of the proven discrepancies in rating between the two, the results for the protein infographic are presented in table 5.5.

Table 5.5: Coefficient Estimates accuracy protein

Model	Unstandardized Coefficients		Standardized Coefficients			
		B	Std. Error	Beta	t	Sig.
	(Constant)	,153	,193		,791	,429
Main Attributes	$BR_{Government}$	,203	,097	,124	2,095	,037
	$SR_{Academic}$	,210	,094	,128	2,227	,027
	$MT_{Discouraging}$	-,166	,094	-,102	-1,764	,079
Socio-demographics	Attitude supplements	,169	,094	,108	1,791	,074
	Female	-,162	,084	-,121	-1,932	,054
	High exposure	,260	,109	,171	2,386	,018
	High peer use	,388	,142	,174	2,729	,007
	High personal use	-,226	,104	-,154	-2,175	,031
Interaction effects	High personal use_$BR_{Government}$	-,186	,104	-,107	-1,795	,074
	SupAtt_$BR_{Government}$	-,161	,110	-,084	-1,466	,144
	R^2	0,135				
	Adj. R^2	0,102				

Among socio-demographics, a favorable attitude toward supplements (B = 0.169, p = 0.074), high exposure to supplements (B = 0.260, p = 0.018), and moderate peer use (B = 0.388, p = 0.007) all contribute positively to credibility. This might be due to familiarity with the information presented, or possible confirmation bias withing these groups. In contrast high personal use (B = -0.226, p = 0.031) is linked to lower credibility perceptions. As with credibility, this group may rate infographics that appear overly simplistic or generic as less accurate. Women also tended to rate the accuracy lower (B = -0.162, p = 0.054). This is in line with the higher

general septicity expected towards the information.

Interaction effects show that for respondents who hold a favorable attitude towards supplements, government branding decreases the perceived accuracy of infographics. This is similar to the finding on credibility. The branding is furthermore moderated by high personal use rates. Interestingly enough the negative effect of high personal use rates is somewhat lessened by the presence of a government brand, indicating that this branding does evoke a little more perceived accuracy even amongst high users. The overall negative impact of the high use rates are likely because these individuals are more skeptical of information that challenge their personal believes. Whilst both these effects are not traditionally significant, they both approach this level. Furthermore they have the same direction for similar interaction effects, thus highly suggesting that there is a relation. The model estimations for the creatine supplement is shown in table 5.6.

Table 5.6: Coefficient Estimates accuracy creatine

Model	Unstandardized Coefficients		Standardized Coefficients			
		B	Std. Error	Beta	t	Sig.
	(Constant)	3,296	,088		37,269	<.001
Main Attributes	BR_{Public}	,203	,097	,124	2,095	,037
	$BR_{Government}$	,081	,097	,047	,676	,500
	$SR_{Internet}$	,123	,104	,071	1,181	,239
	$SR_{Academic}$	-,120	,124	-,069	-,967	,334
Socio-demographics	High exposure	,253	,114	,157	2,222	,027
	High personal use	-,202	,110	-,130	-1,838	,067
Interaction effects	HighEdu_$SR_{Academic}$	,132	,104	,076	1,273	,204
	SupAtt_$BR_{Government}$	-,161	,110	-,084	-1,466	,144
	R^2	0,062				
	Adj. R^2	0,041				

Focusing on the main attributes, public entity branding stands out as a key factor influencing perceptions of credibility for creatine supplements. The positive coefficient for public branding (B = 0.203, p = 0.037) suggests that respondents view information presented by public institutions as more accurate. Sourcing also had some effect within the model, however its effect size is the smallest and the least significant, therefor it can not reliably be stated that this has a meaningful effect on the accuracy rating.

When looking at socio-demographic variables, high exposure (B = 0.253, p = 0.027) is also associated with increased accuracy ratings. This indicates that individuals who are more exposed to supplements are more likely to trust information about creatine. This may be explained by greater familiarity with the supplement landscape, leading to a more open evaluation of presented information. In contrast, high personal use (B = -0.202, p = 0.067) is linked to a reduction in perceived accuracy. Although just shy of conventional statistical significance, the direction and size of this effect suggest that heavy users may approach the constructed infographic with more skepticism. A likely cause for this is the novel and controversial information posted in the infographic concerning creatine. With people less likely to accept new information that goes against personal believes. It should be stated that this piece of information was present is every single infographic concerning creatine. As discussed in section 4.2, this was a deliberate choice. The expectation being that if it was only included in negative or neutral infographics it would exasperate the effect messaging type has, leading to wrong conclusions.

Looking at interaction effects, the combination of high education and academic sourcing (HighEdu_SR_Academic, B = 0.132, p = 0.204) produces a positive but uncertain effect on credibility. This pattern is consistent with expectations that higher education may enhance appreciation for academic authority. Although in this context the effect does not appear to be especially strong. Similarly, the interaction between supplement attitude and government branding (SupAtt_BR_Government, B = -0.161, p = 0.144) trends negatively, suggesting that those with favorable supplement attitudes may be less trusting of government branded messages. This is consistent with the findings related to credibility. However, as the explained variance for creatine is low, the accuracy rating is mostly dependent on factors not captured by the model.

5.3 Usefulness

The usefulness rating reflects participants' perceptions of how practical and beneficial the infographic is. It is expected that infographics featuring government or public health branding, as well as clear source references, will be rated as more useful. Additionally, participants with greater prior exposure to supplement information may find the content less useful as they may already be familiar with the information presented. The model including the main attributes is shown in table 5.7.

Table 5.7: Coefficient Estimates main attributes usefulness

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	3,249	,063		51,600	<.001
	$MT_{Discouraging}$	-,055	,084	-,032	-,654	,514
	$MT_{Encouraging}$	,022	,084	,013	,260	,795
	$BR_{Government}$	,074	,084	,044	,882	,378
	BR_{Public}	,115	,084	,067	1,365	,173
	$SR_{Internet}$	,150	,084	,088	1,787	,075
	$SR_{Academic}$	-,049	,084	-,029	-,579	,563
	Creatine	-,004	,059	-,003	-,062	,951
	R^2	,016				
	Adj. R^2	,003				

While public health branding appears to have a statistically significant positive effect on perceived usefulness, the effect size is extremely small. This extremely low explanatory power raises questions about the importance of this effect. It is likely that other factors, not captured in the current model, play a much larger role in how participants assess the usefulness of supplement infographics. It is expected that exposure, education, personal and peer usage levels, and attitude towards supplements will be more relevant for this rating. This due a combination of expected confirmation bias, information saturation, personal experiences, and personal general attitudes. The model with these factors included is presented in table 5.8.

Table 5.8: Coefficient Estimates usefulness

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	3,296	,088		37,269	<.001
Main Attributes	BR_{Public}	,164	,070	,097	2,348	,019
	$SR_{Internet}$	,128	,070	,075	1,836	,067
	$SR_{Academic}$	-,051	,070	-,030	-,630	,529
Socio-demographics	Age	-,022	,005	-,195	-4,628	<.001
	Attitude supplements	,214	,069	,132	3,105	,002
	High exposure	,071	,093	2,081	,038	
	High activity level	-,348	,235	-,067	-1,482	,139
Interaction effects	HighEdu_SupAtt	,161	,071	,096	2,260	,024
	SupAtt_$SR_{Internet}$	,178	,094	,090	1,901	,058
	SupAtt_$SR_{Academic}$	-,143	,094	-,072	-1,518	,130
	R^2	0,106				
	Adj. R^2	0,091				

Examining the main attributes, public branding emerges as an important factor shaping perceptions of usefulness. The positive coefficient for public branding (B = 0.164, p = 0.019) indicates that information presented by public institutions is generally viewed as more useful by respondents. Internet sourcing (B = 0.128, p = 0.067) also trends positively, suggesting that content with easily accessible sources are deemed marginally more useful. Although this effect does not quite meet traditional significance thresholds, its direction and size are notable.

Among the socio-demographic variables, age stands out with a clear negative effect (B = -0.022, $p < 0.001$). This suggests that older individuals systematically rate supplement information as less useful, perhaps due to generational differences in trust or familiarity with supplement health content. In contrast, a positive attitude toward supplements (B = 0.214, p = 0.002) is associated with higher usefulness ratings, implying that those with favorable views of supplements find such information more relevant to their needs. High exposure to supplements (B = 0.147, p = 0.038) is similarly associated with higher usefulness. By contrast, high activity levels trends negatively (B = -0.348, p = 0.139). This might be due to a multitude of reasons, a person who is very active may be familiar with the information presented and thus have no personal use for it. However there is a higher degree of uncertainty when interpreting these results.

Turning to the interaction effects, several interesting patterns emerge. The interaction between high education and supplement attitude (HighEdu_SupAtt; B = 0.161, p = 0.024) is positive and significant, suggesting that highly educated individuals with positive supplement attitudes find the infographic more useful. The interaction between supplement attitude and internet sourcing (SupAtt_SR_Internet; B = 0.178, p = 0.058) also trends positive, indicating that individuals with favorable supplement attitudes find information that is more easily accessible especially useful, though this effect just misses the traditional significance threshold. In contrast, the interaction between supplement attitude and academic sourcing (SupAtt_SR_Academic; B = -0.143, p = 0.130) is negative, albeit uncertain. This might be hinting that for those with positive attitudes, academic references may paradoxically decrease perceived usefulness. This might be due to unfamiliarity with the sourcing style, or a skepticism towards new research challenging established ideas.

Overall, the model explained about 11% of the variance in usefulness ratings. This might be indicating that while these predictors play a meaningful role, perceptions of usefulness are likely shaped by factors not captured in the experiment. However it also points to a large degree of heterogeneity withing the sample.

5.4 Shareability

The shareability rating reflects participants' willingness to share the infographic with others. It was expected that infographics featuring positive or negative information, as well as clear source references, would be rated as more shareable. Additionally, participants with greater prior exposure to supplement information might be less inclined to share the content, as they may perceive it as less novel or relevant for their social circles. The results are presented in table 5.9. It is expected that non of these attributes make a large impact as the mean shareability rating was fairly low across all infographics constructs, as discussed in section 4.4.3.

Table 5.9: Coefficient Estimates main attributes Shareability

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	3,249	,063		51,600	<.001
	$MT_{Discouraging}$	-,038	,089	-,021	-,422	,673
	$MT_{Encouraging}$	,038	,089	,021	,429	,668
	$BR_{Government}$	,075	,089	,042	,842	,400
	BR_{Public}	,042	,089	,023	,472	,637
	$SR_{Internet}$	,101	,089	,056	1,134	,257
	$SR_{Academic}$	-,121	,089	-,067	-1,360	,174
	Creatine	-,099	,063	-,067	-1,573	,116
	R^2	,012				
	Adj. R^2	,001				

As shown in the table above, none of the infographic attributes had a significant impact on the shareability rating. Academic sourcing and the supplement type do approach statistical significance, but the effect size is small. Furthermore the explained variance is close to 1% indicating that there is a very slim chance any reasonable conclusions can be drawn from it.

Therefor another model is estimated that includes more interaction effects and demographic factors. It is expected that personal attitude, education, peer use, personal use, and exposure have a more significant impact compared to just the attributes. The results are presented in table 5.10.

Table 5.10: Coefficient Estimates Shareability

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	2,238	,162		13,837	<.001
Main Attributes						
Socio-demographics	Attitude supplements	,495	,071	,289	6,966	<.001
	Age	-,020	,005	-,166	-4,119	<.001
	Creatine	-,100	,059	-,068	-1,707	,088
Interaction effects	HighEdu_SupAtt	-,328	,073	-,185	-4,471	<.001
	High personal use_BR_{Public}	-,187	,083	-,097	-2,253	,025
	High exposure_BR_{Public}	,183	,097	,081	1,881	,060
	High personal use_$SR_{Internet}$	-,117	,077	-,061	-1,513	,131
	$MT_{Discouraging}\_Highexposure$	-,125	,090	-,055	-1,380	,168
	R^2	0,140				
	Adj. R^2	0,127				

Among the socio-demographic variables, attitude toward supplements has a particularly strong positive influence ($B = 0.495$, $p < 0.001$), indicating that individuals with a favorable view of supplements are much more likely to find such information shareable. This substantial effect suggests that personal endorsement of supplements directly translates into a greater willingness to share related content. This is very much in line with the expectations formulated as a result of section 2. Age is negatively associated with shareability (B =

-0.020, $p < 0.001$), implying that older respondents are less inclined to share supplement information. This generational pattern may be due to differences in digital sharing habits. Finally, The effect for creatine (B = -0.100, $p = 0.088$) is negative but modest, suggesting a slight reluctance to share creatine related infographics. However as stated previously it is hypothesized that this is likely due to the controversial information included in each creatine related design. There reasoning behind this design choice is stated in 4.2.

Examining interaction effects, several notable patterns emerge. The interaction between high education and supplement attitude (HighEdu_SupAtt; B = -0.328, $p < 0.001$) is negative and substantial, indicating that for highly educated individuals with a positive attitude toward supplements, the likelihood of sharing content actually decreases. This could reflect a more critical approach to information sharing among this subgroup. This is perhaps due to higher standards for what is considered share worthy, or fear of scrutiny from their peers for sharing information that may be deemed common knowledge in their network.

Another interaction is observed between high personal use and public entity branding (High personal use_BR_Public, B = -0.187, $p = 0.025$). Here, heavy users of supplements are less likely to share content branded by public institutions, which may signal either skepticism toward public messaging or a preference for alternative sources. Conversely, high exposure to supplement information combined with public entity branding (High exposure_BR_Public, B = 0.183, $p = 0.060$) trends positively, suggesting that people who are exposed to more supplement information may find public entity branded content somewhat more shareable, though the effect is not strictly significant nor large.

Other interaction effects, such as high personal use with internet sourcing and discouraging messaging with high exposure, are weaker and less definitive, indicating that their influence on shareability might be more limited compared to the other factors. However it does hint that the expected relation between discouraging messaging and a reluctance to share might exist.

Overall, the model explains about 14% of the variance in shareability ratings, highlighting that both personal attitudes and the interplay between individual characteristics and infographic attributes are important in understanding what drives people to share supplement information. Though it proves difficult to influence this.

5.5 Intention to follow

Initial analysis showed that with regards to the intention to follow, the two supplement types can be grouped as there is no discernible difference between both the constant and the interaction effects. Table 5.11 shows the effect of the attributes on the intention to follow.

Table 5.11: Coefficient Estimates Attributes and Intention to Follow

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	2,134	,069	30,715	<.001	,105
	$MT_{Discouraging}$	-,112	,098	-,056	-1,136	,256
	$MT_{Encouraging}$	,100	,098	,050	1,021	,308
	$BR_{Government}$	,096	,098	,048	,971	,332
	BR_{Public}	,167	,098	,084	1,702	,089
	$SR_{Internet}$	,124	,098	,062	1,259	,208
	$SR_{Academic}$	-,084	,098	-,042	-,849	,396
	R^2	,019				
	Adj. R^2	,008				

The initial results are largely in line with the expectations. Discouraging messaging lowers the intention to follow whereas positive messaging increases it. Both public as well as government branding increases the intention to follow as opposed to no branding, indicating that branding is an important aspect to include. What is rather noteworthy is the negative effect of academic sourcing. A potential explanation is that highly formal or unfamiliar references may reduce perceived accessibility or relevance for some respondents, especially those with lower educational backgrounds. Another explanation might be that the QR code provided an easier way to instantly get more information which might have boosted the rating.

It is theorized that participants' perception rating of the infographics, as reflected in their ratings of credibility, accuracy, usefulness, and shareability, together influence their intention to follow the advice or information presented. Positive perceptions are expected to increase the likelihood that participants will act on the information or recommendations made by the infographics. By including all previous rating dimensions as predictors in the model, it becomes possible to examine how each uniquely contributes to the intention to follow. This helps to better understand how effective communication drives behavioral intentions. The results are presented in table 5.12.

Table 5.12: Coefficient Estimates rating and Intention to Follow

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	-,220	,135		-1,626	,105
	Credibility	,141	,055	,130	2,570	,010
	Accuracy	,084	,061	,072	1,382	,168
	Usefulness	,248	,055	,211	4,493	<.001
	Shareability	,508	,039	,458	13,080	<.001
	R^2	,508				
	Adj. R^2	,504				

This regression analysis shows that participants' willingness to share, perceptions of usefulness, and perceived credibility of the infographic all significantly and positively predict their intention to follow the advice or recommendations presented. Shareability emerges as the most influential factor, suggesting a close link between participants' intent to spread health information and their own behavioral intentions. This relation was expected but the expected effect size was not expected to be as high as it is. What was not in line with the expectations was the effect and significance of the accuracy rating. Although it tends toward a positive effect, the effect size is small. This might reflect that people weigh broader practical and social considerations above technical accuracy when deciding whether to act on health information. The high explained variance of 51% indicates that these factors together capture a substantial portion of what drives people to act on supplement infographic content. In order to examine how the socio-demographic factors influence the intention to adopt, a range of interaction effects are included. The resulting regression model is presented in table 5.13.

Table 5.13: Coefficient estimates Intention to Follow

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	,199	,196		1,019	,309
	Shareability	,505	,038	,456	13,211	<.001
	Usefulness	,277	,050	,236	5,487	<.001
	Credibility	,151	,043	,138	3,470	<.001
Socio-demographics	Age	-,009	,004	-,065	-2,146	,032
Interaction effects	Shar_High personal use	,145	,038	,179	3,794	<.001
	Cred_High personal use	-,123	,024	-,246	-5,224	<.001
	High personal use_BR_{Public}	-,109	,064	-,051	-1,700	,090
	Cred_BR_{Public}	,025	,017	,044	1,458	,145
	Shar_$MT_{Encouraging}$	,034	,026	,038	1,309	,191
	R^2	,541				
	Adj. R^2	,534				

This regression analysis offers rich insights into the complex web of factors that shape participants' intention to follow the advice or recommendations presented in supplement infographics. The results reveal that both the perceived qualities of the infographic (shareability, usefulness, credibility, and accuracy) and a number of individual background factors, as well as their interactions, play meaningful roles.

Among the predictors of intention to follow supplement advice, shareability (B = 0.505, $p < 0.001$) remains the strongest driver, indicating that content people are inclined to share is also seen as worth following. Usefulness (B = 0.277, $p < 0.001$) and credibility (B = 0.151, $p < 0.001$) both contribute positively, highlighting that practical value and trustworthiness are important but somewhat secondary to the social resonance of the information. It can however be argued that the causal relation of shareability might be flipped. As people might be more willing to share information they intend to adopt themselves. This possibility is further explored in the discussion.

Among the interaction effects, credibility combined with high personal use (Cred_High personal use; B = -0.123, $p < 0.001$) stands out for its negative association. This suggests that for heavy supplement users, credibility actually has a reduced or even negative impact on their intention to follow the advice. This could reflect that individuals that are already deeply ingrained in their supplement routines, are less likely to change their behavior in response to credible messages. Even though they still recognize and rate those messages as credible. In other words, credibility remains important to them in theory, but it does not strongly influence their established habits or intentions.

Conversely, shareability combined with high personal use (Shar_High personal use; B = 0.145, $p < 0.001$) shows a positive effect. This indicates that for frequent users, they are more likely to change behavior when the infographic influencing said change is worth sharing with others.

Age (B = -0.009, $p = 0.032$) is negatively associated with intention to follow, implying that older individuals are less likely to act on supplement advice. This may be due to increased skepticism or a degree of rigidness when adjusting existing behavior patterns. Other interaction effects, such as those involving public branding and encouraging messaging, are weaker and more uncertain, suggesting limited additional influence in this context.

Overall, the model shows a small increase in the explained variance over the model estimated with the ratings alone. This implies that a mix of social, practical, and trust based cues shape behavioral intentions. The nuanced patterns among heavy users in particular underscore how individual background can change the weight of what drives health behavior, With enviromental attitudes sometimes overtaking more traditional cues like credibility.

5.6 Key Findings

The analysis demonstrates that branding plays the most substantial role in shaping perceptions of credibility. With both government and public health branding consistently boosting credibility ratings compared to unbranded content. However, the influence of branding is not uniform across all groups. Notably, individuals with a generally positive attitude toward supplements, as well as those with higher levels of personal supplement use, sometimes perceive government branding as less credible. likely due to skepticism toward institutional messaging. Source transparency, such as including a QR-code, also trends toward higher credibility. Whereas academic referencing only strongly enhances credibility among highly educated respondents. Demographic factors matter as well as older participants and women tend to be more critical in their credibility assessments. Overall, perceptions of credibility are shaped by both the presented attributes and the individual's background and attitudes. However the explained variance is relatively low implying that there are other factors at play not captured in the experiment.

Accuracy ratings similarly showed that government branding and academic sources positively affected perceptions of protein supplement information, while public health branding was most influential for creatine supplements. For this rating the supplement types were analyzed separately as there was significant difference in rating between the two. This was likely due to the information presented in the creatine infographic being based on a very recent study which challenged the common opinion surrounding creatine. For protein infographics, high exposure led to a higher accuracy measure. This might be due to the respondent having more knowledge about the supplement and thus recognizing the claims made. For creatine, older participants rated the information as less accurate, and among moderate supplement users, referencing an internet source actually decreased perceived accuracy. Individuals with high personal use of supplements tended to rate the infographics as less accurate, possibly due to skepticism toward information that contradicts their established practices. The overall variance explained remained modest, indicating that accuracy perceptions are influenced by a broad range of personal and contextual factors, some not included in the model.

Usefulness was rated higher for infographics featuring public health branding, but this effect was minimal. When socio-demographic and attitudinal variables were included, older participants tended to find the infographics less useful. A positive personal attitude toward supplements and moderate online exposure were linked to higher usefulness ratings. Additionally, an interaction between high education and positive attitude suggested that usefulness is perceived especially strongly by highly educated individuals with favorable attitudes toward supplements. Nevertheless, a significant portion of perceived usefulness remains unexplained by the model as it accounted for 11% of the variance.

Shareability of the infographics was found to depend primarily on individual attitudes and experiences rather than on infographic attributes. The strongest predictor was a positive attitude toward supplements, indicating that those with favorable views are more likely to share supplement related content. However, this association was less pronounced among highly educated individuals, who appeared to be more picky in what they chose to share. Both age and higher levels of peer supplement use were negatively associated with shareability, the latter could possibly be due to increased fear of scrutiny among peers when they share information that might not align with their peers' views or be deemed common knowledge. The explained variance amounted to 15% indicating that most of the variance is due to factors not captured in this experiment

While the infographic attributes accounted for a portion of the variance, this increased noticeably when background characteristics were included. This suggests that personal and contextual factors play a meaningful role, potentially as substantial as the design attributes themselves.

Across all outcome measures, the intention to follow the infographic's advice was most strongly predicted by the perceived shareability, usefulness, credibility, and accuracy of the content, with shareability emerging as the single strongest predictor. It can however be argued that this casual relation might be the other way around. People might be more inclined to share information if they intend to adopt it. The impact of these perceptions on intention was further moderated by education, attitudes, peer and personal supplement use, and online exposure. The final variance explained by the model was 54% indicating that these factors together account for a substantial majority of what drives individuals' intentions to act on health infographic content. This shows that while effective messaging and credible presentation matter, the ultimate influence on behavior is shaped by a complex combination of personal and social context, making targeted and audience specific strategies essential for health communication efforts.

6

Discussion & Conclusions

This chapter discusses how the results of this research help answer the research question *How do changes in infographic information attributes influence intent to change sport supplementation behavior amongst different socio-demographic groups?*

First section 6.1 will discuss the key findings, wherafter section 6.2 will anwser the formulated research questions. Then section 6.3 will discuss the contribution to the literature. After this section 6.4 will discuss the policy reccomendations based on the results. This is followed by the limitations of this research discussed in section 6.5, and finally section 6.6 will discuss avenues for future research.

6.1 Key Findings and implications

6.1.1 Credibility

The results reveal that the perceived credibility of health infographics is influenced by branding, sourcing, and messaging type, but these effects vary significantly across audience subgroups.

Branding had the largest impact among the infographic attributes. Government and public health logos increased credibility, but not for everyone. Among participants with strong positive attitudes toward supplements, government branding actually reduced credibility likely due to mistrust in governmental institutions when making personal health choices. Public health branding, by contrast, was received more favorably by this group suggesting it's viewed as a more neutral party.

Sourcing also shaped credibility, with QR codes and external links improving trustworthiness. Academic references were only effective for highly educated participants, while generic internet sources tended to reduce credibility in this group. This is likely due to an increased familiarity with academic source formatting, and an increased skepticism towards general internet sources. However it should noted that this effect is not traditionally significant, although it is deemed fairly reliable as the effect direction and size are in line with the expectations.

Messaging type had a smaller but potentially relevant effect. Discouraging messages slightly reduced credibility, however this effect was not traditionally significant. Though this effect and it size did heavily trend towards significance. This combined with the expectations formulated as a result of the literature, make for a compelling case for the validity of this effect. Moderate personal supplement users also rated negative infographis as less credible. Whilst this effect is somewhat in line with the expectations, it was more so expected that high personal use would have this effect. It should be noted that this effect had one of the smallest effect sizes and did only trend towards significance slightly. This combined with the slight deviations from the expectations make it a more uncertain effect.

Socio-demographic factors and interactions further modulated these effects. For example older individuals were consistently more skeptical. This is well in line with the expectations as older individuals tend to be more stubborn in changing existing believes. Additionally, high activity levels are associated with lower credibility, though these effects remain very slightly below conventional significance thresholds. These groups may be more confident in their ability to judge information independently, as they have more experience in the fitness world. Interaction effects confirmed that credibility is not just about design, but also about how well the content aligns with the audience's values.

The findings on credibility reinforce the central message of this thesis: effective health communication must be tailored to its audience. These patterns confirm that credibility is not just about clear or accurate design, it's about resonance with its audience. To increase the perceived accuracy infographics must align not only with best practices in design, but also with the values, beliefs, and demographics of their viewers.

6.1.2 Accuracy

The findings on perceived accuracy highlight the complex relationship between infographic design, individual traits, and prior attitudes toward supplements. While branding and sourcing influence accuracy perceptions, their impact depends heavily on the supplement type and the viewer's background. Most notable was the fact that creatine related infographics were perceived as significantly less accurate. This is likely because the infographic included a recent claim that challenges popular assumptions about creatine's effectiveness. Therefor both the accuracy rating for protein and creatine are modeled separately.

For protein supplements, government branding and academic sourcing increased perceived accuracy, suggesting that institutional authority and scholarly references are effective. However, discouraging messaging slightly reduced accuracy perceptions, indicating that negatively framed information might trigger skepticism. This reinforces earlier literature suggesting that negative health messaging can backfire when it conflicts with personal beliefs.

In contrast, for creatine supplements, public branding was the only infographic attribute with a consistent positive effect on accuracy. Internet sourcing also approached significance, however it trailed behind in comparison to other interactions and factors. High personal use of supplements was consistently associated with lower perceived accuracy across both supplement types, pointing to resistance toward new or conflicting information.

High supplement exposure was associated with higher perceived accuracy, likely due to greater familiarity with the content. This suggests that accuracy is not only about content quality, but also about recognition and reinforcement of existing knowledge.

The interaction effects provide further nuance. For example, highly educated participants rated academic sources as more accurate, while those with favorable attitudes toward supplements rated government branded content as less accurate. This is particularly the case when the message contradicted their beliefs. These effects underscore the need for tailored messaging strategies in health communication.

Overall, the explained variance for accuracy was very low, indicating that infographic attributes and the measured personal characteristics explain only a small part of how participants judge factual accuracy. One of the potentially relevant factors that were not captured might be prior knowledge. As this might impact how easily persuaded people are by new information.

6.1.3 Usefulness

Public branding significantly increased perceived usefulness, suggesting that information from public health institutions resonates more with users than government or unbranded content. Internet sourcing also trended positively, implying that easily accessible links can enhance relevance as the information can more easily be fact checked. However the attributes alone explain only 1.5% of the variance, indicating an extremely low impact.

Perceived usefulness of supplement infographics depends far more on the characteristics and attitudes of the audience than on design choices such as branding. Although public health branding provides a modest boost, greater gains are associated with targeting individuals who already hold positive attitudes toward supplements or have moderate online exposure to supplement information. Conversely, usefulness perceptions decline with age and among those whose social circles regularly use supplements. This effect might be explained by possible skepticism or information saturation. The interaction between education and attitude suggests that messages resonate most with highly educated, positively inclined individuals, but may be less effective in peer groups with established supplement behaviors. As such, maximizing perceived usefulness requires a degree of audience specific design. This model explained around 11% of variance indicating that other factors were also at play.

6.1.4 Shareability

The findings indicate that infographic attributes alone have minimal influence on shareability, with no design element showing a significant standalone effect or any effect approaching significance. This suggests that factors such as branding or sourcing do little to encourage users to share supplement related content in isolation. The explained variance in the base model was only around 1%, confirming that design alone is insufficient to drive sharing behavior.

However, when socio-demographic factors and interaction effects were included, shareability became more predictable with 14% of the variance explained. The strongest positive predictor was a favorable attitude toward supplements, indicating that people are more likely to share content if they have a positive attitude towards supplements in general. Quite notable is the fact that older generations were once again scoring lower on this factor, as with the past 3.

Interestingly, highly educated participants with positive supplement attitudes were less likely to share, possibly due to higher standard for what is deemed share-worthy or fear of social judgment. This implies that even those who support the supplementation may refrain from sharing the infographics when they are either surface level or they perceive a risk for reputational credibility loss in their peer group.

Finally, interaction effects showed that heavy supplement users were less likely to share infographics branded by public entities, whereas those with high exposure to supplement content were slightly more receptive to sharing such material. What is notable that high user groups once again scored lower when moderated by the branding and sourcing. This gives more credence to the hypothesis that people with ingrained habits are more critical of differing information.

In short, if health campaigns aim to boost shareability, they must consider not only message design but also the social context of the audience. Simply providing accurate or credible information isn't enough as it must also feel personally relevant, socially acceptable, and worth endorsing.

6.1.5 Intention to follow

Among all predictors, shareability was the most influential factor, suggesting that when content feels worth sharing, it is also more likely to be followed. It can, however, be argued that the causal relationship between shareability and behavioral intent may operate in the opposite direction. Rather than shareability driving the intention to act, it is possible that individuals are more inclined to share information precisely because they already intend to adopt it themselves. thus the act of sharing becomes an expression of personal endorsement or alignment with the content, rather than a factor that independently motivates behavior change. This alternative interpretation suggests that shareability may reflect, rather than cause, behavioral intent. This is expanded upon in the limitations section. Usefulness and credibility also had significant positive effects, emphasizing the importance of trust and practical relevance.

Interestingly, accuracy had only a minor and statistically insignificant effect, suggesting that simply being factually correct isn't enough to motivate action. Instead, participants seemed to place more weight on whether the content felt relevant to their values and whats reinforced by their social network.

Interaction effects further adds to this understanding. High personal supplement use rates negatively impact the intent to change behavior. This is very much in line with the hypothesis that high supplement use and resistance to changing habits go hand in hand. However shareability had a positive effect with this group, implying that if high supplement users deem something worth sharing, they are even more likely to adopt the information themselves. this is likely due to the fact that for heavy supplement users sharing may signal alignment with their believes. additionally these users often serve as informal sources of advice within their social circles thereby increasing the likelihood of adopting the message themselves to maintain consistency between what they promote and how they behave.

behavioral change is less about delivering correct information, and more about how that information fits into the personal and social fabric of the audience. While credibility and usefulness played important roles, shareability emerged as the strongest predictor of whether participants intended to act on the infographic's advice. This suggests that people are more likely to adopt information they see as socially relevant and appropriate to share—content that reinforces their identity, beliefs, and the norms of their peer group.

Across all observations participants were more responsive to information that felt aligned with their values, experiences, and social context. This is particularly evident in high supplement users, who were generally resistant to changing their behavior based on credibility alone. However, when the same content was seen as share worthy, even these ingrained habits were more inclined be adjusted.

The interaction effects further emphasized that intention to follow is highly audience specific. Age, education, attitudes, and usage patterns all influenced how participants interpreted the infographics. This underlines that effective health communication cannot rely on generic design or messaging. Instead, it must be tailored to both the psychological and social profiles of its intended audience. To be persuasive, health messages must not only inform, but resonate, reflect, and fit into the user's world.

6.2 Interpreting the Findings

The findings demonstrate that while design features such as branding, sourcing, and messaging type do have an effect, these are often mediated by the characteristics of the target audience. Government and public health logos tended to increase perceived credibility, particularly when the viewer already held negative or neutral sentiments towards supplementation. Similarly, the inclusion of QR codes improved credibility for most, but

academic references were only consistently effective among participants with higher levels of education.

What stood out more clearly was the role of personal background. Factors like age, education, and supplement habits often shaped how participants responded to the same piece of content. People who already had a positive view of supplements were more critical when evaluating the infographics, even when it came from official sources. On the other hand, people who were less embedded in fitness culture seemed more open to new information.

There were some differences between the two supplements featured, but they weren't notably big. The inclusion of the controversial creatine claim in all creatine related infographics often triggered skepticism, emphasizing how prior beliefs and expectations can reduce receptiveness to new information. Howeverbecause both supplement types were likely already familiar to most participants, the overall influence of supplement type on behavioral intent remained limited.

The clearest insight came when looking at what drove people's intention to act on the infographic's advice. It wasn't credibility or accuracy that made the biggest difference, it was shareability. If someone felt the content was worth sharing with others, they were also more likely to follow the advice themselves. Usefulness also played a strong role. Accuracy, while important, had a weaker effect, especially when it clashed with what someone already believed.

However, a significant amount of variance in behavioral intent remains unexplained, indicating that infographic design is not the full story and that there is a high factor of heterogeneity when it comes to intent. Factors like personal motivation, prior beliefs, and broader social context likely play a key role in shaping responses and should be explored further in future research.

To conclude, the effectiveness of infographic based health communication depends not only on what is communicated, but on how well the message resonates with the audience. Design alone is insufficient. To truly influence behavior, health messages must also reflect the beliefs, experiences, and social environments of their intended viewers.

6.3 Contribution to literature

This research contributes to the academic literature at the intersection of public health communication, behavioral science, and visual design. It does this by providing a systematic and empirical investigation into how infographic attributes influence the effectiveness of health messaging within the context of sport supplementation.

Firstly, this study applies the Information Acceptance Model (IACM) within the context of visual health communication on sport supplements. While the model's core constructs were not altered, its relevance was tested in a new setting, offering insight into how it performs outside previously studied domains. Previous research, such as that by Chu et al., 2024, has demonstrated the model's applicability to general health and wellness content. This study advances it by operationalizing how infographic attributes, such as message framing, source citation, and branding affect its core constructs. In doing so it deepens the understanding of how intention to follow predictors change when individuals engage with different infographic constructs. Interestingly, this research did find a lower impact of the accuracy rating on the behavioral intent compared to the study by Chu et al., 2024. Suggesting that this factor may be less important when information challenges notions held by the respondents.

Secondly, this thesis incorporates socio-demographic moderators, such as age, gender, education level, supplement use history, and gym experience, into the IACM framework. This addition reveals the impact these personal characteristics have on the different ratings. This provides valuable insights for effectively targeted infographics.

Finally, by aligning its findings with the strategic goals of institutions like the Dutch Food and Consumer Product Safety Authority (NVWA), this research not only contributes to theoretical development but also offers practical recommendations for the design of more targeted public health campaigns. The study provides a valuable interdisciplinary contribution by linking design attributes, psychological reasoning, and demographic context to real world behavioral outcomes.

6.4 Policy recommendations

Based on the findings of this research, several actionable recommendations can be made for policymakers and public health agencies designing campaigns around nutrition and sport supplement use. Particularly for institutions such as the Dutch Food and Consumer Product Safety Authority (NVWA).

Adjust Branding and Sourcing Style Based on the Targeted Demographic in order to Increase Credibility.
Although credibility is explained by a large variety of factors, most of which not captured by this experiment, branding and sourcing are revealed to be relevant. As discussed by Renes et al., 2011, it is important to consider and incorporate personal characteristics when constructing campaigns. Certain demographics are shown to react differently to government branding and certain sourcing type, therefor to increase the effectivity the findings of this report need to be incoporated.

Tailor Message Framing to Audience Attitudes
Positive message framing was found to be more effective in fostering engagement and behavioral intent, especially among users with favorable attitudes toward supplements. However, for more skeptical users, neutral or even cautious framing may be more effective. Policymakers should therefore segment target audiences based on known attitudes and exposure levels and adapt the tone of messaging accordingly. To segment target audiences effectively, pre-campaign diagnostics using brief attitudinal surveys or online engagement metrics can identify clusters. Messaging can then be tailored accordingly. When a campaign is aimed toward dissuading certain demographics to take certain supplements this may prove harder. This is due to the tendency to persuade people through the mentioning of potential downsides to the supplement. Instead, it is advised that for certain demographic groups it would be wiser to emphasize the benefits of not taking supplements. This way the messaging type would appear positive, even though it's intended effect is to turn people aways from supplements.

Avoid One-Size-Fits-All Approaches
The overarching results of this report find that although some variance is explained through attributes alone, socio-demographic consistently improve the explained variance amongst the model results, implying that they are perhaps as relevant or even more relevant than the attributes alone. Therefor campaigns should be segmented into the different audience demographics, and be setup according to their differences. Then these adjusted campaigns can be deployed in each demographic groups via either target advertisements online, or placement of the information based on where these demographic groups are often found.

Boost Shareability Through Platform Specific Design
Although infographics were generally rated as relatively credible and accurate, their perceived shareability was notably lower. Even if shareability reflects intent rather than causes it, improving it remains strategically valuable. Low shareability limits organic reach, reducing the chance that content is seen or discussed. In highly social platforms like Instagram and TikTok, shareable content is more likely to circulate within peer networks thus enhancing exposure. Tailoring visuals and language to each platform can therefore help messages gain traction, even if shareability itself does not directly drive behavior change. To improve organic reach, campaign designers should consider platform specific modifications that increase shareability. These could include engaging visuals, and simplified language tailored to Instagram, TikTok, or other preferred channels.

Incorporate Behavioral and Environmental Cues in Campaign Design
This study did not measure the effects of environmental cues directly. However, the strong association found between shareability and behavioral intent suggests that socially relevant and publicly visible messaging plays an important role in influencing user behavior. As argued by Renes et al., 2011, and further affirmed by this research, campaigns should be supported by environmental cues. This includes for example gym posters, influencer partnerships, or digital advertisements. These should be further reinforced by parallel interventions such as school curricula or information days at sport clubs.

Pre-Test Infographics With Target Audiences
Although this study systematically varied infographic attributes, it did not involve iterative pre-testing with the target population. However, the observed variation in perception across demographic groups underscores the importance of tailoring messages to specific audiences. Before large scale deployment, campaign materials should be pre-tested with representatives from intended demographic groups. This allows for refinement of message tone, visual design, and perceived relevance. This deeper understanding of the audience allows for more targeted campaigns, thereby improving effectiveness.

6.5 Limitations

While this study offers valuable insights into the effectiveness of infographic based health communication, several limitations must be acknowledged. These limitations do not undermine the relevance of the findings but rather highlight areas where caution is warranted and where future research may provide further clarity.

Causality Shareability
While the results indicate a strong association between shareability and intent to follow, the direction of this relationship cannot be definitively established within this study. It is plausible that individuals rated an infographic as shareable because they already intended to adopt the advice it offered, rather than shareability itself leading to that intention. In this case, shareability would function more as a reflection of personal alignment than as a causal driver of behavior. If this is not taken into account, this might lead to wrongful interpretations of campaign metrics. Campaigns that measure success through shares or engagement may misread these signals as precursors to action, when in fact they may just be expressions of pre-existing intent or approval.

Static Design Elements
The study employed a structured set of infographics with pre-defined attribute combinations. While this approach allowed for controlled comparisons, it limited exploration of more dynamic or interactive formats such as animated infographics, video reels, or influencer co-created content. As discussed in the literature, these factors are increasingly relevant in today's digital media environments. This restricts the conclusions based on this research to static visual formats only.

Artificial Exposure
Participants evaluated infographics within the artificial setting of a survey, which differs substantially from real life conditions. In real life people often consume content passively on social media, often alongside other distractions and algorithm driven content. As a result the way infographics were perceived in the study may not fully reflect how they would be engaged with in a more natural setting.

Simplification of Attitude Constructs
Although the study constructed personal and social attitudes using a set of targeted survey items, these constructs may oversimplify the complex belief systems surrounding supplementation. As seen in the results, a large part of the variance was consistently unexplained. Trust in science, health literacy, distrust in institutions, body image concerns, cultural attitudes, and other nuanced dimensions were beyond the scope of this research. However these likely play an important role in shaping responses.

Measurement of Behavioral Intent vs. Actual Behavior
While intention to adopt information is a valid and commonly used proxy for potential behavior, it does not guarantee real world behavioral change. As noted in existing literature, there is often a gap between intention and action. This study does not measure actual changes in behavior and may therefor leave open questions about the actual impact of infographic exposure on supplement use practices.

Sample Representativeness
Although a very common limitation, the sample was obtained through convenience sampling and is not fully representative of the broader Dutch population. Participants were primarily young adults, highly educated, and more likely to engage in fitness and supplements than the general public. This overrepresentation may have biased the results toward individuals who are already more health conscious or familiar with supplementation. However it should be noted that within the context of the recommendations and population, this sample is still relatively representative.

Limited Scope of Supplement Types
The study focused only on two popular supplements, being protein powder and creatine. While these are widely used and relevant, the scope excludes other common supplements such as pre-workouts, fat burners, or vitamins. The difference in these 2 supplements was minimal, which might be due to their widespread use causing them to be viewed as "safe" supplements. Other supplements may garner different reactions due to differing levels of controversy or familiarity. As such, conclusions drawn from this study may not apply uniformly across all supplement categories, which makes this a very promising avenue for future research.

6.6 Future research

Building on the findings and limitations of this study, several avenues for future research are recommended to deepen understanding and expand the practical relevance of infographic-based health communication strategies.

Explore Interactive and Dynamic Infographic Formats
One promising direction for future research involves exploring the effectiveness of interactive and dynamic infographic formats. This particularly in response to the current study's limitation to static visuals. Dynamic formats such as animated infographics, short-form video content on platforms like TikTok or Instagram Reels, and co-created content with influencers, may offer differing results. These formats are increasingly common in today's digital media landscape and may affect audiences differently, especially when it mimics real world exposure to the content.

Role of Supplement Type in Message Reception
This study included two widely used supplements, protein and creatine, to provide a controlled comparison between familiar contexts. However, the results suggest that the type of supplement featured may influence how infographic messages are received. Future research could build on this by systematically comparing reactions to a broader range of supplement types, including more controversial or lesser-known products such as pre-workouts, fat burners, or others. By assessing whether certain supplements consistently trigger greater resistance, skepticism, or confirmation bias, a more complete picture can be drawn. Additionally, interviews or open-ended survey responses could be used to explore why certain supplements evoke stronger reactions, and how personal investment, familiarity, or risk perception may moderate these effects.

Evaluate Shareability Influence Mechanisms
Another important avenue for future research is to evaluate the mechanisms behind shareability. Shareability was on average notably low across all respondents, yet rated found to be a very significant predictor for behavioral intent. it is important to examine what might increase users' willingness to share content. This could be intertwined with the finding on how platform specific design influences the shareability.

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A

Infographic constructs

This appendix gives an overview of all infographics constructs created:

eerlijk over eten
Voedingscentrum

4 Feitjes over: Creatine

Waarom creatine supplementatie niet voor jou kan zijn

Gewichtstoename

Creatine kan een snelle gewichtstoename veroorzaken door meer vocht vast te houden. Dit kan nadelig kan zijn voor atleten in gewichtsgevoelige sporten

spiermassa toename overschat

Creatinesupplementatie vergroot spiermassa niet veel. Eerdere studies hebben de voordelen van creatine op spiergroei mogelijk overschat

Explosiviteit

Creatinesupplementatie verbetert energiereserves in de spieren en versnelt het aanvullen hiervan, waardoor atleten beter kunnen presteren tijdens korte en intensieve activiteiten

Darmklachten

Sommige gebruikers melden maag en darmklachten zoals buikpijn, misselijkheid of diarree bij het gebruik van creatine, vooral bij hogere doseringen of tijdens de laadfase

Buford et al., 2007
Desai et al., 2025
Kreider et al., 2017
Antonio et al., 2021

4 Feitjes over: Creatine

Wat doet het nou eigelijk?

Bevordert herstel

Creatine vermindert spierschade en ontstekingen na zware inspanning. Dit helpt bij aan een sneller herstel en minder spierpijn

spiermassa toename overschat

Creatinesupplementatie vergroot spiermassa niet veel. Eerdere studies hebben de voordelen van creatine op spiergroei mogelijk overschat

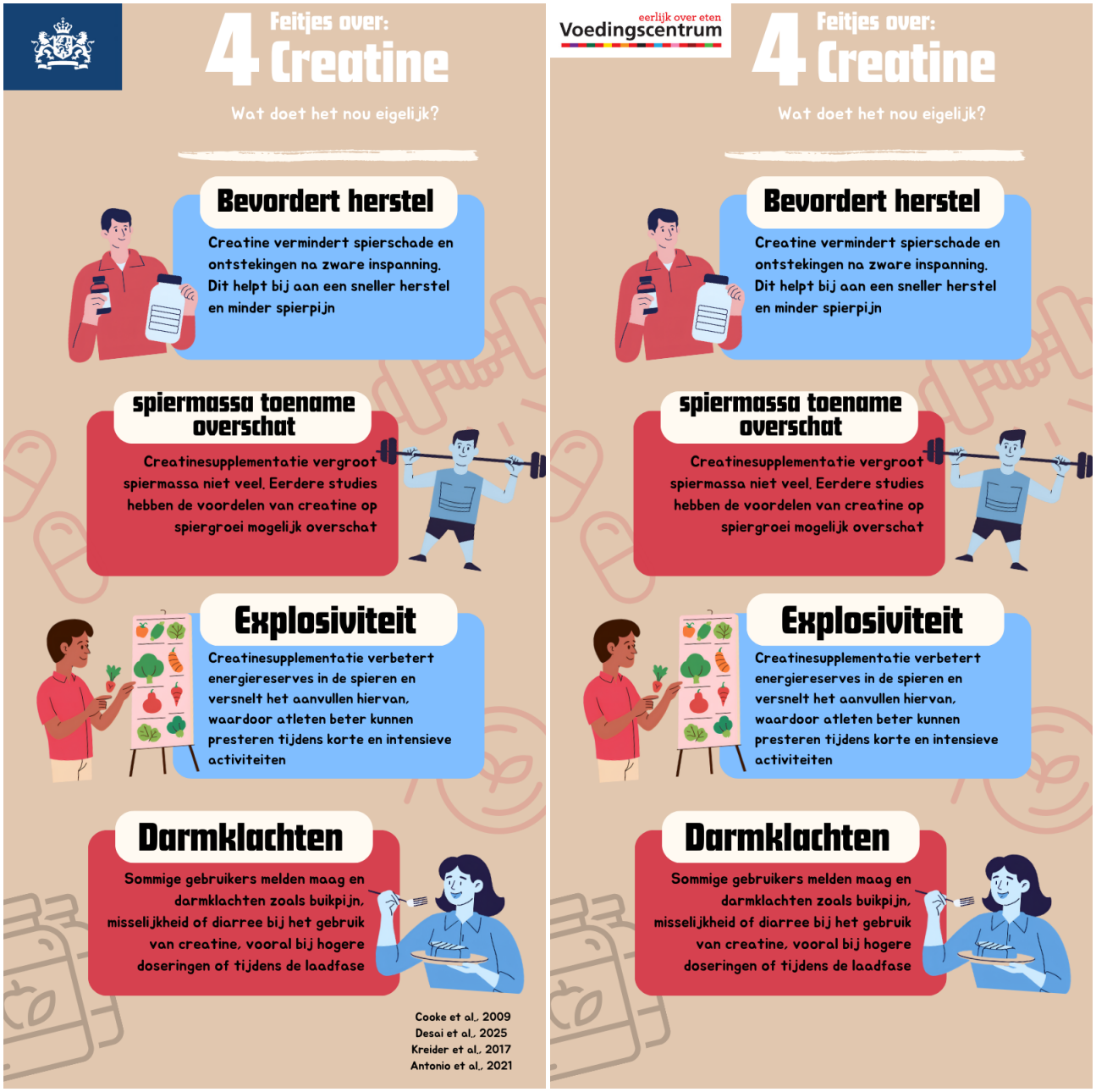
Explosiviteit

Creatinesupplementatie verbetert energiereserves in de spieren en versnelt het aanvullen hiervan, waardoor atleten beter kunnen presteren tijdens korte en intensieve activiteiten

Darmklachten

Sommige gebruikers melden maag en darmklachten zoals buikpijn, misselijkheid of diarree bij het gebruik van creatine, vooral bij hogere doseringen of tijdens de laadfase

Meer informatie op:
www.voedingscentrum.nl/encyclopedie/creatine.aspx
Of scan de QR-code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Creatine
Wat doet het nou eigelijk?
Bevordert herstel
Creatine vermindert spierschade en ontstekingen na zware inspanning. Dit helpt bij aan een sneller herstel en minder spierpijn
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Cooke et al., 2009
Desai et al., 2025
Kreider et al., 2017
Antonio et al., 2021
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Helpt denkvermogen
Creatinesupplementatie helpt bij een beter denkvermogen, vooral bij vermoeidheid of stress. Het bevordert ook het geheugen.
Cooke et al., 2009
Desai et al., 2025
Kreider et al., 2017
Rawson & Venezia, 2011


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Meer informatie op:
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Of scan de QR-code

4 Feitjes over: Proteine

Waarom proteine supplementatie niet voor jou kan zijn

Onevenwichtig Dieet

Te veel vertrouwen op eiwitsupplementen kan leiden tot een onevenwichtig dieet waarin er een tekort kan onstaan in belangerijke voedingsstoffen , zoals vezels, vitamines en mineralen

Misleidende marketing

Door marketing denken kopers vaak dat eiwitsupplementen noodzakelijk zijn om fitnessdoelen te bereiken, terwijl deze ook met een gebalanceerd dieet te behalen zijn

Ondersteunt spiergroei en herstel

Het nemen van proteine na het sporten bevordert de ontwikkeling van spiermassa en ondersteunt het herstel van de spieren

Mogelijke gezondheids klachten

Overmatige inname kan risico's met zich meebrengen, waaronder nierschade bij mensen met een aanleg hiervoor of problemen zoals maag- en darmklachten.


Rijksoverheid
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El Khoury et al., 2019
Knapik et al., 2016
El Khoury et al., 2019
Morton et al., 2018


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Hoe Proteine jou helpt de beste prestaties te behalen tijdens sporten

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Ondersteunt gezond ouder worden

Ouderen hebben last van een natuurlijke afname van spiermassa. Eiwitsupplementen kunnen helpen om spiermassa en kracht te behouden, vooral in combinatie met krachttraining

Leidy et al., 2015
Knapik et al., 2016
Deutz et al., 2014
Morton et al., 2018

Rijksoverheid

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Meer informatie op:
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Of scan de QR-code

B

Survey questions

Table B.1: Survey questions

Label	Attribute/ element	Question(s)	Scale
Consent	-	1 x Consent	-
Socio-demographic	Age	How old are you?	interval
	Gender	Whats you gender?	ordinal
	Education	Whats your highest completed education?	ordinal
	Ethnicity	Whats your ethnicity?	ordinal
Supplement exposure	Social media usage	How many hours do you spend on social media per week?	ordinal
	Sport supplement exposure via social media	How many sport supplementation posts do you see per week?	ordinal
	Personal supplement use	How frequently do you use sport supplementation?	ordinal
		What supplements do you use?	ordinal
	Peer supplement use	Do you know anyone who uses sport supplements?	binary
		Think of the person closest to you, how frequently do they use sport supplementation?	ordinal
		What supplements do they use?	ordinal
Rating experiment	RE (6x)	How credible is the infographic	Likert (1-7)
		How correct is the information conveyed?	Likert (1-7)
		How useful is the information?	Likert (1-7)
		How likely are you to share this information with others?	Likert (1-7)
		How likely are you to use this information when debating to use the supplement pictured?	Likert (1-7)
Attitude	Perceived necessity	Protein shakes are necessary for people who partake in resistance training	Likert (1-7)
		You can get everything you need from normal food instead of supplements	Likert (1-7)
	Trust supplement	Most sport supplements have proven benefits on training results	Likert (1-7)
		I trust the safety of supplements sold by my gym	Likert (1-7)
		I believe brands make honest claims about their sport supplement products	Likert (1-7)

	Perceived risk	I worry about possible side effects from sport supplements	Likert (1-7)
		I take sport supplements like pre-workout without exactly knowing whats in them	Likert (1-7)
		I check the ingredient list before taking a new supplement	Likert (1-7)
	Peer pressure	I feel pressure from others in my sport community to take supplements	Likert (1-7)
Response source	Survey origin	How did you find this survey?	ordinal
Interview	Open to follow-up	Are you open to a follow-up interview/ if so leave your contact information below	

C

Final survey

U bent uitgenodigd om deel te nemen aan een onderzoek dat wordt uitgevoerd door Jasper Baars van de TU Delft.

Met deze vragenlijst willen we uw mening te weten komen over informatieposters die gaan over sport supplementen.

U blijft anoniem in alle documenten van het onderzoek. Aan het einde van deze enquête kunt u, indien u interesse heeft in een vervolggesprek over uw antwoorden, uw telefoonnummer of e-mailadres achterlaten. Dit is niet verplicht om de vragenlijst af te ronden. Mocht u van gedachten veranderen over het achterlaten van uw gegevens, dan kunt u de onderzoeker [redacted] per e-mail vragen deze gegevens onmiddellijk te verwijderen, hiervoor hoeft u geen enkele reden te vermelden. Als we de gegevens voor een ander doel willen hergebruiken, zullen we contact met u opnemen.

Uw deelname aan dit onderzoek is geheel vrijwillig en u kunt zich op elk moment terugtrekken.

Contact informatie onderzoeker: [redacted]

Als u de vragenlijst opent, gaat u akkoord met deelname aan dit onderzoek, zoals het hierboven omschreven is.

Hoe oud bent u?

→

Wat is uw geslacht?

- ◯ Man
- ◯ Vrouw
- ◯ Non binair
- ◯ Ik antwoord liever niet

→

Wat is het hoogste opleidingsniveau dat u heeft afgerond?

- ◯ Basisonderwijs
- ◯ Middelbaar onderwijs
- ◯ Voorbereidend wetenschappelijk onderwijs (VWO)
- ◯ MBO
- ◯ HBO Bachelor
- ◯ WO Bachelor
- ◯ WO Master
- ◯ Doctoraat
- ◯ Ik antwoord liever niet

→

Hoe zou u uw etnische afkomst omschrijven?

- ○ Nederlands
- ○ Overig Europees
- ○ Indo
- ○ Turks
- ○ Marokaans
- ○ Surinaams
- ○ Caraïbisch
- ○ Chinees
- ○ Anders
- ○ Ik antwoord liever niet

→

Hoe vaak ziet u posts posts over sport supplementen op social media?

- ○ Nooit
- ○ Af en toe (1-2x per maand)
- ○ Met enige regelmaat (1-2x per 2 weken)
- ○ Vaak (1-2x per week)
- ○ Zeer vaak (3-5x per week)
- ○ Dagelijks (1x per dag)
- ○ Ik antwoord liever niet

→

Hoeveel uur sport u *wekelijks* gemiddeld? (teamsport, fitness, hardlopen, etc.)

- ○ 0 uur
- ○ 1-2 uur
- ○ 3-4 uur
- ○ 5-6 uur
- ○ 7-8 uur
- ○ 9-10 uur
- ○ 11-12 uur
- ○ 13-14 uur
- ○ 14+ uur
- ◉ Ik antwoord liever niet

→

Hoe vaak neemt u sport supplementen zoals proteine poeder, creatine, pre-workout, Fat-burners, Anabolen, etc. (sportdrankjes zoals AA of Red-Bull vallen hier *niet* onder)

- ○ Nooit
- ○ Af en toe (1-2x per maand)
- ○ Met enige regelmaat (1-2x per 2 weken)
- ○ Vaak (1-2x per week)
- ○ Zeer vaak (3-5x per week)
- ○ Dagelijks (1x per dag)
- ○ Ik antwoord liever niet

→

Welke supplementen neemt u?

- ☐ Proteine poeder
- ☐ Creatine
- ☐ Pre-workout
- ☐ SARMS
- ☐ Anabolen steroïden
- ☐ Anders, namelijk:

☐ Ik antwoord liever niet

→

Kent u mensen in uw omgeving die sport supplementen nemen?

- ◯ Ja
- ◯ Nee

→

Denk aan het persoon dat het dichtst bij u staat en sport supplementen neemt.

Hoe vaak neemt dit persoon supplementen zoals proteine poeder, creatine, pre-workout, Fat-Burners, Anabolen, etc? (sportdrankjes zoals AA of Red-Bull vallen hier *niet* onder)

- ◯ Af en toe (1-2x per maand)
- ◯ Met enige regelmaat (1-2x per 2 weken)
- ◯ Vaak (1-2x per week)
- ◯ Zeer vaak (3-5x per week)
- ◯ Dagelijks (1x per dag)
- ◯ Ik antwoord liever niet
- ◯ Weet ik niet

→

Welke supplementen neemt dit persoon?

- [ ] Proteine poeder
- [ ] Creatine
- [ ] Pre-workout
- [ ] SARMS
- [ ] Anabolen steroïden
- [ ] Anders, namelijk:

- [ ] Ik antwoord liever niet
- [ ] Weet ik niet

→

U krijgt straks 6 informatieposters te zien die te maken hebben met een sport supplement. *Elk van deze informatieposters is anders.* U zult daarna gevraagd worden een aantal vragen over de informatieposters te beantwoorden.

→

Bekijk de onderstaande informatieposter en beantwoord de vragen

Beantwoord de vragen over de informatieposter

In welke mate vindt u dat de informatieposter betrouwbaar is?	Zeer onbetrouwbaar	Onbetrouwbaar	Tamelijk onbetrouwbaar	Neutraal
In welke mate denkt u dat de informatie op de informatieposter correct is?	Zeer incorrect	Incorrect	Tamelijk incorrect	Neutraal
In welke mate vindt u de informatieposter nuttig?	Zeer onnuttig	Onnuttig	Tamelijk onnuttig	Neutraal
Hoe waarschijnlijk is het dat u deze informatieposter met anderen zou delen	Zeer onwaarschijnlijk	Onwaarschijnlijk	Tamelijk onwaarschijnlijk	Neutraal
Hoe waarschijnlijk is het dat u de informatie op deze informatieposter zou gebruiken wanneer u besluit het supplement wel of niet te nemen.	Zeer onwaarschijnlijk	Onwaarschijnlijk	Tamelijk onwaarschijnlijk	Neutraal

	Helemaal oneens	Oneens	Niet mee oneens, maar ook niet mee eens
Eiwitshakes zijn een noodzakelijke aanvulling voor wie aan krachttraining doet.	○	○	○
De meeste sport supplementen hebben een bewezen positief effect op prestaties.	○	○	○
Je kunt net zo goed alles uit normale voeding halen in plaats van supplementen te gebruiken.	○	○	○
Ik neem supplementen zoals pre-workout zonder te weten wat er precies in zit	○	○	○
Ik maak me zorgen over mogelijke bijwerkingen van pre-workouts.	○	○	○
Ik vertrouw op de veiligheid van supplementen die in de sportschool verkocht worden.	○	○	○
Ik controleer altijd de ingrediëntenlijst voordat ik een sport supplement gebruik.	○	○	○
Ik voel druk van anderen om supplementen te nemen in mijn sportomgeving.	○	○	○
Ik geloof dat merken van sport supplementen eerlijke claims maken over hun producten.	○	○	○

Q53

Hoe heeft u deze vragenlijst gevonden

- ○ Social media
- ○ QR-Code
- ○ Pamflet
- ○ Via een bekende
- ○ Anders namelijk: