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Relationships of interoceptive awareness with achievement motive congruence, Neuroticism & Openness

Master thesis

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सोऽहम्

"*So Ham* (सोऽहम्) stands in Vedic philosophy as a mantra for the connection of the experienced individual reality with the all-encompassing highest Self." (Prof. Dr. K. Becker, personal communication, 21 February, 2022). For me, *So Ham* is the universal answer to the question: "Who am I?". May it lead us to deep self-knowledge!

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List of abbreviations

AV Dependent variable
MAIA Multidimensional Assessment of Interoceptive Awareness
MAIA-2 Multidimensional Assessment of Interoceptive Awareness, Version 2
NEO-FFIFive-Factor Inventory
NEO-FFI-30 30-Item Short
Version PSE Picture Story Exercise
SPSS Statistical Package for the Social
Sciences TAT Thematic Test of Understanding
UV Independent variable

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Summary

This empirical research work investigated the question of whether the connection between implicit and explicit achievement motives becomes more positive with higher interoceptive awareness (H1). In addition, the correlations of the dispositional personality traits neuroticism (H2) and openness (H3) with interoceptive awareness were examined. In addition, it was examined whether there was a negative correlation between the implicit achievement motive and the probability of dropping out of the online survey (H4a). In addition, it was examined whether there is a negative correlation between the explicit achievement motive and the probability of dropping out of the online survey (H4b).
Data collection of interoceptive awareness was based on the Multidimensional Assessment of Interoceptive Awareness, Version 2 (MAIA-2) by Bornemann et al. (2015) and Eggart et al. (2021). The characteristics of the implicit performance motives were operationalised with the Picture Story Exercise by Schultheiss and Pang (2007). The characteristics of the explicit achievement motives were measured with the GOALS by Pöhlmann and Brunstein (1997). The neuroticism scale and the openness scale of the 30-item short version by Körner et al. (2008) were used to determine the characteristics of the corresponding dispositional personality traits.
The cross-sectional results of the H1 have shown that only the Noticing scale of the MAIA-2 exerts a moderating effect on the connection between the implicit and explicit achievement motives. In the occasional sample studied, a lower level of noticing was associated with achievement motive congruence. The H2 findings demonstrated that Neuroticism was significantly negatively related to the Non-Distraction, Don't Worry, Attention Regulation, Emotional Awareness, Self-Regulation, Listening to the Body, and Trust scales of the MAIA-2. The results of H3 highlighted that openness is significantly positively related to the Noticing, Attention Regulation and Listening to the Body scales of the MAIA-2. The findings of H4a and H4b have shown that a higher implicit and a higher explicit achievement motive predicts a lower dropout probability of the online survey. The results of this research were interpreted and integrated based on the existing literature.

1 Introduction

"It is not the consciousness of people that determines their being, but conversely their social being that determines their consciousness" (Marx, 1859, p. 9). But what exactly influences human consciousness and what significant connections can be explained empirically? In this research paper, findings from consciousness and motivation research are brought together and expanded.

The task of motivation research is to empirically investigate individual motivations for goal-directed behaviour (Heckhausen & Heckhausen, 2018). In doing so, the orientation, *persistence* (endurance) and intensity of goal striving are analysed and linked to cognitive, affective and physiological processes. On this basis, intra- and interindividual differences in experience and behaviour can be explained more precisely (Brandstätter et al., 2018). The pursuit of motive satisfaction is considered an essential prerequisite for goal-directed states of experience and behaviour. Motives can be satisfied through the interaction of personal factors (dispositional personality traits, types of motives, motive themes) and environmental factors (situational incentives) (Brandstätter, 2019). Motives are classified in terms of content into different motive themes and motive types (McClelland et al., 1989; Weinberger & McClelland, 1990).

The individual preference to strive for achievement incentives is called *achievement motive*. Like other motivational themes, the achievement motive can be expressed unconsciously (*implicitly*) and consciously (*explicitly*) in self-images. There can be intra- and inter-individual differences in the expressions (McClelland et al., 1989). Motive congruence describes the congruence of the expression of the implicit and explicit achievement motive, whereas motive incongruence characterises the non-congruence (Brunstein, 2018). Various health-promoting properties of motive congruence, such as higher subjective well-being, have already been clarified empirically (Brunstein et al., 1998, Schultheiss et. al., 2008). Although empirical evidence on motive congruence and incongruence is also available on self-access (Thrash et al., 2007) as well as on self-control and self-regulation (Baumann et al., 2005), to the best of our knowledge, no suitable studies on *interoceptive awareness* could be found within the editing process of this research work.

Interoceptive awareness is defined as the subjective, conscious perception of sensations from within the body, including interacting attribution processes (Bornemann et al., 2015; Cameron, 2001; Craig, 2002; Mehling et al., 2009). Knowledge about interoceptive consciousness processes is increasingly expanding due to the growing number of empirical studies (Tsakiris & Critchley, 2016). The present research has synthesised this topic area from consciousness research with motivational psychology findings.

The study examined whether the correlation between the implicit and explicit achievement motives becomes significantly more positive with higher interoceptive awareness. In addition, the correlations of the dispositional personality traits neuroticism and openness with interoceptive awareness were illuminated. In addition to individual differences in experience, motivational-psychological behavioural aspects were empirically examined. To this end, it was tested whether a higher implicit achievement motive is related to a lower probability of dropping out of the online survey. It was also tested whether a higher explicit achievement motive is associated with a lower probability of abandoning the online survey.

At the beginning of this research work, in the theoretical part, basic terminology, models and contexts of motivational psychology are presented, which are useful for understanding the content. Motivation as goal-oriented behaviour is analysed in more detail, with achievement motivation being specified. Subsequently, motivation models and dispositional personality traits are discussed.

Implicit and explicit motives, their operationalisation and their interaction are then presented. Building on this, empirical findings on (private) body consciousness are cited, which form a transition to interoceptive consciousness. Interoceptive consciousness is then defined and examined in more detail. This is followed by the derivation of the need for research. The main part focuses on the derivation of the hypotheses, the methodology and the statistical results of the online survey conducted. In the subsequent discussion, the relevant results are summarised and interpreted. The methodological approach is critically reflected and empirical and practical recommendations are made. The most significant findings are specified in the final conclusion. Within the

In this research work, the generic masculine is used as a generalisation for the sake of consistency. This formulation includes female, male or differently gendered individuals equally.

2 Theoretical Basis

In this chapter, the theoretical background of the present empirical research work is illuminated. Section 2.1 first introduces the subject area of motivational psychology by presenting relevant terminology, contexts and models that are helpful for the general understanding of this thesis. Section 2.1.1 defines the descriptive characteristics of goal-directed behaviour and describes the achievement motive in more detail. Subsequently, in section 2.1.2 motivation as goal-directed behaviour is specified in more detail. In section 2.1.2 dispositional personality traits are dealt with, whereby the *5-factor model* is examined more concretely.

Section 2.2 then discusses implicit and explicit motives in more detail. Section 2.2.1 describes the operationalisation of implicit and explicit motives and section 2.2.2 describes motive congruence and incongruence. Based on this, theoretical and empirical correlations are presented that lead to the multidimensional construct of interoceptive awareness. Subsequently, interoceptive awareness is discussed in more detail in section 2.3. The concluding section
2.4 legitimises the theoretical relevance of this research.

2.1. Introduction to Motivational Psychology

The term motivation is often used in everyday language.
In everyday understanding, this usually describes specific characteristics of action such as drive, determination and willingness to perform (Brandstätter et al., 2018). The definition in the *German dictionary* also focuses on the performance aspect by describing motivation as the "will or drive to perform" (Paul, 2002, p. 675). In scientific usage, motivation is described as goal-oriented behaviour. A specific target behaviour is always integrated into a more comprehensive set of goals (Heckhausen & Heckhausen, 2018).

Representatives of scientific motivation psychology describe motivation (as a comprehensive psychological construct) even more concretely in their definitions (Brandstätter et al., 2018). John W. Atkinson, a pioneer of experimental motivation research (Brandstätter et al., 2018), summarises the subject matter of motivation research as follows: "The study of motivation has to do with analysis of the various factors which incite the direct and individual's actions" (Atkinson, 1964, p. 1). Heckhausen and Heckhausen (2018) provide a more detailed and exemplary description of the subject matter of motivational psychology. They describe the life of an individual as "a never-ending stream of activities" (Heckhausen & Heckhausen, 2018, p. 2), whereby individuals can differ from one another with regard to various activities. In addition to visible activities such as actions or communications, mental activities such as perceptions, thoughts and feelings are also crucial for discrepancies in individual goal pursuits (Heckhausen & Heckhausen, 2018). Essential determinants of motivational psychology can be derived from these definitions. As already clarified in the introduction, the essential task of motivational psychology is to concretise the orientation, persistence and intensity of goal-directed behaviour and to link it to cognitive, affective and physiological processes. On the basis of these descriptive features of goal-directed behaviour, inter- and intra-individual differences in experience and behaviour can be explained more precisely (Brandstätter et al., 2018).

2.1.1. Descriptive characteristics of goal-directed behaviour

With regard to behavioural orientation, individual motivations that are directed towards a specific goal are of particular research interest (Heckhausen & Heckhausen, 2018). Motivations set out what an individual prioritises in the current course of life and what he or she considers important. These can be, for example, the pleasure of gaining knowledge, the feeling of pride and positive prospects of success in one's job. A motivation to strive for a certain target behaviour is also called an *incentive (*Brandstätter et al., 2018). According to Heckhausen and Heckhausen (2018), incentives can represent situational positive or negative demand characters for corresponding actions. They can be primarily linked to the action itself, the action outcome or the action outcome consequences. Accordingly,

incentives come from the environment and can be divided into different incentive classes by their differential thematic content (Heckhausen & Heckhausen, 2018). The individual preference to strive for a certain incentive class is also called motive (McClelland et al., 1989).

The most frequently studied motive themes are: Exerting influence on others (*power motive*), making and maintaining social contacts (*connection motive*), and overcoming challenges (*achievement motive*). According to the original approach of McClelland et al. (1953), these three motive themes represent the dominant basic motives. According to them, an attempt is made to explain the behavioural orientation of an individual in terms of individual motives as concretely and economically as possible. For example, an individual's high achievement motive is aroused by the incentive of being given the opportunity to deal with challenging tasks in the work environment. In this example, the composition of a high achievement motive and weak connection motive would predict a more business-oriented and withdrawn lifestyle than a sociable and relationship-oriented one (Brandstätter et al., 2018).

The achievement motive is still considered the best-founded motive today (Brunstein & Heckhausen, 2018). Murray (1938) already described achievement ("n(eed) achievement") as a psychogenic need that has organically anchored itself within an individual as a governing force through the course of socialisation. According to McClelland et al. (1953), behaviour is considered achievement-motivated as soon as an individual engages in a standard of proficiency. According to this definition, different activities can be described as achievement-motivated as long as the individual aspect of self-optimisation is included. Ontogenetic findings could clarify through the expression of self-assessment emotions, such as pride or shame, in children at the age of about 3 ½ years that not only the performance outcome, but also the individual proficiency is assessed (Brunstein & Heckhausen, 2018). Atkinson (1957) differentiated the achievement motive more precisely in his risk-choice model by distinguishing the *success motive (*hope of success) and *failure motive* (fear of failure). Research shows that success-motivated individuals set realistic goals and choose tasks of moderate difficulty. Failure-motivated individuals, on the other hand, fear failure and either choose tasks that are too easy or too difficult.

or tasks that are too difficult. In addition, those who are motivated to fail give up more quickly when faced with challenges (Brunstein, 2018).

As was made clear in the introduction, persistence is also the focus of motivation research and refers to the individual's persistence in pursuing a goal. An individual with high persistence would not give up on a goal as quickly as an individual with low persistence, despite distractions or other challenges that might arise in the process of exercising the behaviour. Several action steps are often necessary to achieve a goal (Brandstätter et al., 2018).

Persistence is one of the central characteristics of goal-directed behaviour, the conditions of which have been studied in particular within achievement motivation research (Brandstätter, 2019).

In addition to different incentive classes that stimulate a corresponding motive (power, connection, performance), there are also different types of incentives. An incentive can lie both in the activity itself and in the consequences that the activity entails. Activity incentives are directly relevant when performing the corresponding activity (Brandstätter et al., 2018) and are also described as *flow experience* (Engeser & Vollmeyer, 2005). Unlike activity incentives, purpose incentives only become significant later as a consequence of goal achievement (Brandstätter et al., 2018). Both types of incentives can also be pursued in parallel when implementing a specific activity (Engeser & Vollmeyer, 2005). The conceptual uses of activity and purpose incentives show parallels to *intrinsic* and *extrinsic motivation in* some literature. Activities that derive their incentive mainly from the performance of the activity are described as intrinsically motivated. Activities are defined as extrinsically motivated if they are carried out because of expected results (Harlow, 1950; Hunt, 1965; Koch, 1956; McReynolds, 1971; Schiefele & Köllner, 2001). Section 2.2 takes up this topic in a more differentiated way. The concentration, effort mobilisation and effort experience of an individual as an investment of goal achievement describes the last relevant descriptive characteristic of goal-directed behaviour, which is defined as behavioural intensity (Brandstätter et al., 2018).

2.1.2. Motivation models

In the course of the developmental line of motivation research, different motivation models have been used to specify goal-directed behaviour more precisely. Since the beginning of experimental psychology, however, various motivation problems have been known due to existing differences in the definition of constructs (Heckhausen & Heckhausen, 2018). Thus, as Hermann Ebbinghaus (1850-1909) is said to have said about psychology, motivation research also seems to have "a long past but a short history" (Heckhausen & Heckhausen, 2018).

However, well-known and often published motivation models show certain parallels and explain goal-directed behaviour as an interaction of various personal factors and environmental factors. The behavioural formula V = P x U formally expresses this relationship. The multiplication of personal factors (P) with environmental factors (U) expresses the necessity of the existence of both factors (P x U) for a corresponding target behaviour (V). Another statement of the behavioural formula is that a strong expression of the person factors alone in interaction with weakly expressed environmental factors would produce a corresponding behaviour. Conversely, weakly expressed personal factors in interaction with strongly expressed environmental factors would also favour corresponding target behaviour. General motivational psychology is based on these basic assumptions (Brandstätter, 2019).

The *overview model of motivation in the course of action* by Heckhausen & Heckhausen (2018; see Appendix B) is also based on these assumptions. The model integrates the *Extended Cognitive Model of Motivation* by Heinz Heckhausen (1977a, 1977b) and *Rheinberg's account of the basic model of classical motivation psychology* (Heckhausen & Rheinberg, 1980; Heckhausen & Heckhausen, 2018). In addition, anticipatory action outcomes and action outcome consequences were integrated into the overview model. The action outcome consequences include long-term goals, external evaluation, self-assessment and material benefits. According to Heckhausen and Heckhausen (2018), personal factors, situational factors and their interaction are also decisive for inter- and intra-individual differences in experience and behaviour. The situational factors include the environmental incentives and opportunities already described as examples. The personal factors are subdivided into motivational dispositions

(implicit motives; see section 2.2), goals (explicit motives; see section 2.2) and include physiological needs (for example, hunger and thirst) and universal behavioural tendencies (see Appendix C) (Heckhausen & Heckhausen, 2018).

2.1.3. Dispositional personality traits

As already highlighted in section 2.1.1, goal-directed behaviour arises from the interaction of situational and personal factors (Brandstätter et al., 2018; Heckhausen & Heckhausen, 2018). The interaction of incentives and dispositional personality traits is particularly significant in explaining individual goal-directed behaviour. Dispositional *traits* are anchored in the personality and are described as stable over time. They explain why one individual performs a certain goal-directed behaviour across situations and another individual does not. Thus, interindividual differences in experience and behaviour can also be explained by robust dispositional characteristics (Scheffer & Heckhausen, 2018).

According to Allport (1937), a trait is defined as a neuropsychic structure that makes many stimuli functionally equivalent and initiates consistent equivalent forms of action and expression and guides their sale. This definition implies that extreme trait expressions lead to rigid and inflexible responses to certain stimuli in the environment (Scheffer & Heckhausen, 2018). This aspect is often associated with personality disorders in a clinical context (Sachse, 2019). Since trait expressions are normally distributed in the population, most people have a rather average expression, which can nevertheless differ significantly from one another (Scheffer & Heckhausen, 2018).

There are different theories of motivation for the dispositional personality traits, which ascribe different levels of importance to the traits. The common goal of different motivation theories is to explain individual differences in experience and behaviour as economically and universally valid as possible. While, for example, systems theory concepts emphasise the influence of the environment, the *five-factor model* concentrates more on endogenous dispositions and

assigns only a low value to the environment (Scheffer & Heckhausen, 2018). In the following section, the five-factor model (*Big Five*) is explained in more detail.

The Five Factor Model (Big Five)

Although the five-factor model is also referred to as *trait theory in* various psychological research areas, it is more of a *trait model from the* field of personality psychology. Nevertheless, both uses of the term are used in parallel and not stringently. The Big Five personality traits have a long history of development. They are based on the lexical approach, which states that human traits are to be described by the totality of linguistically recorded trait words (Scheffer & Heckhausen, 2018). Through preliminary procedural studies of the sedimentation thesis, Allport and Odbert (1936) were able to extract about 17,953 property words from the English language. About ten years later, Cattell adopted this adjective list and reduced it through factor analyses to 171 pairs of opposites, such as future-oriented vs. past-oriented (Scheffer & Heckhausen, 2018). Personnel psychologists Tupes and Christal (1992) also used factor analyses to summarise Allport and Odbert's adjective list into five personality assessment criteria. Goldenberg (1982) published these findings and used them to infer five universally existing neuropsychological traits, now known as the following Big Five: *Neuroticism, Openness* (*to new experiences*), *Conscientiousness*, *Extraversion* and *Agreeableness*.

The Big Five can be found in all individuals in varying degrees, which is intended to determine the overall construct of individual personality. Due to the empirical independence of the Big Five, significant predictions of human temperament are possible (Scheffer & Heckhausen, 2018). Scheffer and Heckhausen (2018) describe that individual expressions of the factors can be intuitively self-assessed or assessed by others by answering simple questions: How sensitive, stress-prone and emotionally unstable am I or the other person (neuroticism)? How imaginative, experimental and flexible am I or the other person (openness)? How hard-working, reliable and tidy am I or the other person (conscientiousness)? How optimistic, convincing and lively am I or the other person?

person (extraversion)? How friendly, cooperative and socially adapted am I or the other person (agreeableness)?

Borkenau and Ostendorf (1993) further explain the level of *types* as an abstracting unit of the Big Five: Individuals with a high level of neuroticism tend to get out of emotional balance more quickly. Such individuals tend to be insecure, worried, nervous, anxious and sad. They also often worry about their health. In addition, they often react inappropriately in stressful situations because they have a low level of self-control. Individuals with a high expression of the personality trait openness are interested in new experiences and tend to be inquisitive, intellectual, imaginative and artistic. A high level of the personality trait Conscientiousness reflects a high degree of self-control, which is expressed in determination, ambition and perseverance. Individuals with high levels of the personality trait Conscientiousness exhibit a high sense of entitlement and may have obsessive-compulsive structures. Individuals high in the personality trait extraversion are described as sociable, self-confident, active, cheerful and optimistic. Individuals with a high level of the personality trait Agreeableness are compassionate, understanding, benevolent and helpful towards others. They are less suspicious and have a strong need for harmony (Borkenau and Ostendorf, 1993).

The Big Five have become very popular, especially due to their structural simplicity (Scheffer & Heckhausen, 2018). As already noted in the introduction to the trait definition, however, the Big Five should not be misunderstood in the sense of a psychiatric categorisation (Borkenau & Ostendorf, 1993). *The* Big Five was designed dimensionally and does not represent a pathological description of an individual's personality (Makuch, 2017).

Validated and frequently used personality tests such as the NEO Five-Factor Inventory (NEO-FFI) by Costa and McCrae (1985) are also based on the categorical classification of the Big Five. It is still one of the most widely used personality tests in psychological research and diagnostics. After the publication of the German translation by Borkenau and Ostendorf (1993), the NEO-FFI has also become established in German-speaking countries (Körner et al., 2008). Since the 30-

item short version (NEO-FFI 30) was included as a measurement tool in this research, it will be described in more detail later in section 4.3.4.

However, a classification of human personality based on the Big Five seems to be too superficial, strongly socially desirable and context-dependent, according to critical arguments (Block, 2010). In addition, empirical findings show that questionnaires have a low retest reliability with socio-demographically disadvantaged test participants. A psychometric measurement is therefore more meaningful with educated test participants (Gnambs, 2015; Gurven et al., 2013). Proponents of the Big Five argue, however, that well-known personality tests were not developed on the basis of the Big Five for no reason. Nevertheless, the complexity of human personality can be measured more comprehensively by taking into account other existing temperament dimensions, such as *risk aversion* (Andresen, 1995). For reasons of parsimony, however, there should be specific reasons for doing so (Scheffer & Heckhausen, 2018). The assumption of the five-factor solution could be confirmed by various analyses (Caprara et al., 2000; Rost et al.,1999; Tokar et al.,1999).
Nevertheless, the number of five basic dimensions is repeatedly discussed critically (Ball, 2002; Becker, 1998; Paunonen & Jackson, 2000).

Empirical findings reveal different combinations of dispositional personality traits and motives that predict goal-directed behaviour more precisely than when only one person variable is taken into account. This can also often reveal new empirical findings (Brunstein, 2018; Winter et al., 1998). Winter et al. (1998) formulated the interaction hypothesis that dispositional personality traits determine the specific form in which implicit motives find expression in behaviour. The following section clarifies the distinction between implicit and explicit motives and their interaction.

2.2. Implicit and explicit Motives

As noted in section 2.1, motives can be systematised not only in terms of content according to their different motive themes. Another classification feature is the classification into implicit and explicit motives (McClelland et al., 1989; Weinberger & McClelland, 1990). Implicit motives are not directly accessible to consciousness and are not represented linguistically. They are based on ontogenetic early childhood experiences with

pre-linguistic incentives and strive for affective satisfaction (McClelland et al. 1989). Accordingly, implicit motives are also described as affect-driven needs (Brunstein, 2010). For example, a difficulty stimulus might stimulate the affect-driven need of an individual with a high implicit achievement motive to complete a challenging task. In doing so, the successful behavioural performance could further trigger the feeling of pride, thereby satisfying the implicit achievement motive (Brandstätter et al., 2018). Implicit motives serve to experience certain incentives as rewarding and certain types of disincentives as aversive (Atkinson, 1957; Schultheiss, 2008).

Unlike implicit motives, explicit motives are directly accessible to consciousness and linguistically represented. Their development begins somewhat later than implicit motives within childhood. They develop through the transmission of goals, values and attitudes of close attachment figures (Brunstein, 2018). As Festinger (1954) already postulated in the *theory of social comparisons*, individuals strive for knowledge about their personal abilities. Insights about the self, through comparisons with similar reference groups, are for example very meaningful for conscious decision-making tasks (Brunstein, 2018). Exposure to norms and rules of the social environment conditions explicit motives to be learned as motivational self-images and integrated as part of the individual self-concept (McClelland et al. 1989). Explicit motives are also considered cognitive needs with which individuals consciously identify (Brunstein, 2018). For example, an explicit achievement motive could be the cognitive attitude that success in life is considered and valued as important (Brandstätter et al., 2018). In summary, implicit motives represent a motivational system derived from affective experiences. Self-attributed motives, on the other hand, are based on cognitively elaborated constructs (McClelland et al., 1989).

Developmental psychological findings illustrate the assumption that both types of motives are associated with different socialisation experiences (McClelland & Pilon, 1983; McClelland, 1985). The implicit achievement motive is assumed to be more related to internal measures (for example, competing with oneself). The explicit achievement motive is instead increasingly associated with normative measures (for example, competing with other individuals). The fact that self-comparisons occur earlier in ontogeny than social comparisons,

could also explain the emergence of the different incentive types (Brunstein, 2018). Empirical findings also point to the distinction between implicit and explicit motives with regard to their different incentive types (see section 2.1.1). Implicit motives are stimulated by intrinsic incentives that lie exclusively in the task or activity itself. Explicit motives, on the other hand, are stimulated by extrinsic incentives, such as social-evaluative incentives (Brandstätter, 2018). For example, the implicit achievement motive is activated by effort and perseverance, whereby no external pressure to perform needs to be exerted on the individual. The incentive to act comes exclusively from the performance requirements set, which the individual himself wants to perform faster and better. An explicit performance motive, on the other hand, is activated by external requirements and regulations (Brunstein, 2018). Thus, individuals with a high achievement-oriented self-image often only exert themselves when they can demonstrate socially recognised abilities in social competition (Patten & White, 1977). Koestner et al. (1991) drew the conclusion from the findings of a meta-analysis by Spangler (1992) that only individuals with a highly developed implicit achievement motive want to master high performance demands. For individuals with a high achievement-oriented self-image, on the other hand, achievements are only a means to an end in order to gain social recognition for themselves (Koestner et al., 1991).

Finally, implicit and explicit motives also influence two different types of behaviour. Implicit motives are expressed through *operant behaviour* and explicit motives through *responsive behaviour*. Operant behaviour, which is predicted by implicit motives, is characterised by spontaneous, self-initiated action in structurally open situations. Repeated long-term action is necessary to satisfy the implicit motive (McClelland, 1980). A situational example of an implicit achievement motive is a long-lasting professional career that requires repeated engagement with intrinsic performance demands (Brandstätter et al., 2018). However, if performance action is constrained by highly structured conditions within the environment, the implicit achievement motive can no longer predict performance (McClelland, 1980).

Explicit motives, on the other hand, predict respondent behaviour, which is a consciously planned reaction to clearly identifiable circumstances within a structured situation.

is described. This includes conscious decisions, evaluations and considerations, which are compared with one's own self-image (McClelland, 1980). An example of an explicit achievement motive is the decision to take on difficult project tasks and the subsequent comparison with an achievement-oriented self-image (Brandstätter et al., 2018). Brunstein and Hoyer (2002) were able to empirically confirm these two different behavioural predictions. In summary, implicit and explicit motives are thus based on different developmental origins, different socialisation experiences, are stimulated by differentiated situational characteristics and predict other behavioural characteristics (Brunstein, 2018).

McClelland et al. (1989) describe implicit and explicit motives as two independent motive systems that are in a relationship of interaction with each other. This insight ended a debate between representatives of implicit and explicit motives that had been going on for decades (Brandstätter et al., 2018). Originally, both motive systems were still considered as a unified construct, which was only operationalised across two different procedures (Entwisle, 1972, McClelland, 1980). According to the traditional view of personality diagnostics, there should then be a correlation of the constructs even across different measurement procedures (Cronbach, 1990). Since this correlation was not present in repeated studies (deCharms et al.,1955; McClelland et al., 1953), the reliability and validity of the two different measurement methods of implicit and explicit motives were initially (incorrectly) questioned (Brunstein, 2018). The following section will briefly introduce the most common motive measurement instruments of implicit and explicit motives, focusing on those that were also used within the present research. Section 4.3 will take up this content by looking more closely at the operationalisation of the research as a whole.

2.2.1. Operationalisation

As already described in section 2.3, implicit motives are not directly accessible to consciousness and are therefore not linguistically represented. For this reason, implicit motives can only be measured introspectively through indirect procedures (McClelland et al. 1989). In order to measure the achievement motive as an affect-based need, McClelland et al. (1953) first developed a version of the

Thematic Apprehension Test (TAT). This is based on ambiguous motif-stimulating images that are intended to generate a stream of imagination in the individual. This can be represented by imaginative stories that are to be written down by the individual (McClelland, 1958). Operationalisation should be independent of self-presentation tendencies, such as social desirability, cognitive abilities, such as actual performance capacity, and situational influences, such as external performance incentives (Brunstein, 2018). The TAT is still considered the basis for the most significant findings in motivation measurement (McClelland et al., 1953) and the basic dynamic idea of motivation (Atkinson, 1957; Atkinson & Birch, 1970; Kuhl & Blankenship, 1979). Ten years later, Heckhausen (1963) published a more differentiated TAT version of the achievement motive. Within this, the distinction between hope for success and fear of failure (see section 2.3) can be made (Heckhausen, 1963).

The TAT is a predecessor of the Picture Story Exercise (PSE) by Schultheiss and Pang (2007), which is based on very similar mechanisms. As with the TAT, the PSE asks participants to write imaginative complete stories about the people depicted in the picture stories.

Specific guiding questions can serve as a guide. The participants are given about five minutes to look closely at a picture and then write down a suitable story. Then they move on to the next picture. Through the process of introspection, the implicit motives of the participants can be indirectly operationalised. The evaluation is carried out using specific coding systems (Brandstätter et al., 2018). Initially, separate coding systems were developed to operationalise the power motive (Veroff, 1957), the connection motive (Heyns et al., 1958) and the achievement motive (Heckhausen 1963; McClelland et al., 1953). Winter (1994) finally developed a more complex coding system, which made it possible to account for the three motive themes together. The PSE is currently one of the most common implicit motive measurement instruments (Brandstätter et al., 2018) and was used to measure implicit motives in this research (see section 4.3.1).

Unlike implicit motives, explicit motives as conscious self-attributions can be measured by direct procedures (Gjesme & Nygard, 1970; Mehrabian,

1969). The explicit motivation system also includes personal life goals (McClelland, 1985), which can be nomothetically recorded by the GOALS life goal questionnaire by Pöhlmann and Brunstein (1997). According to Pöhlmann and Brunstein (1997), life goals represent specific goals that lie at a higher abstract goal level. Accordingly, these are to be classified as overall goals and serve as points of orientation for individual life fulfilment (Pöhlmann & Brunstein, 1997). As explained in the introduction in section 2.1, an individual's goal behaviour is always part of a more comprehensive complex of goals. This means that a subordinate goal can be useful for another goal of a higher order (Brandstätter et al., 2018). A goal can also be generally described as a cognitive representation of a desired state. Unlike desires, goals involve a commitment between the individual and the goal intention (Bargh et al., 2010). The life goals of the GOALS represent approach goals (McClelland, 1985) or growth goals (Maslow, 1954). Accordingly, the life goals of the GOALS are oriented towards a specified positive state. With the GOALS, the importance, the feasibility and the success achieved so far in different goal areas can be assessed (Pöhlmann et al., 2010). As the GOALS was methodically included in this research, it will be discussed in more detail in section 4.3.2.

2.2.2. Motif congruence and incongruence

Based on the coexistence of an implicit and explicit motive system, the question arises as to how exactly the two systems interact. As introduced in section 2.2, McClelland et al. (1989) postulate that both types of motives interact with each other, influencing individual experience and behaviour.

Motive congruence describes the congruence of the expression of implicit and explicit motives that relate to the same content domain (power, connection, performance). Motive *incongruence,* on the other hand, describes the non-conformity of the expression of motive types that correspond in content (Brunstein, 2018).

By means of a four-field scheme with two motive congruence types (A: implicit and explicit motive low in expression; B: implicit and explicit motive high in expression) and two motive incongruence types (C: implicit motive high and explicit motive low in expression; D: implicit motive low and explicit motive high in expression), the

The interaction of implicit and explicit motives can be simplified. In the case of a motive congruence type (A), who has a low implicit and explicit achievement motive, there is no achievement-related goal setting and corresponding behavioural exercise. His affective and cognitive needs regarding the performance domain are not strong enough and no conflict occurs. In the case of a motive congruence type (B), which illustrates a high implicit and explicit motive, the motives *coalesce* on a functional level and direct the energy in a bundled manner towards a corresponding goal-oriented behaviour (Brandstätter, 2018). In this process, implicit motives energise behaviour and explicit motives direct behaviour in a specific direction through concrete goals (McClelland et al. 1989). For example, a high implicit achievement motive of "enjoyment of challenging situations" could be translated into appropriate achievement goals and behaviour via a high explicit achievement motive of "I am an achievement-oriented person", thereby satisfying the implicit motive. The fact that not every individual can be classified into one of the two listed conflict-free motive congruence types is due to the fact that besides congruence, incongruence can also exist between motive types that correspond in content (Brandstätter et al., 2018).

Two different losses result from conflicts: In a motive incongruence type (C) with a high implicit but low explicit motive, the implicit motive is not expressed in behaviour. Consequently, the implicit motive cannot be satisfied (Brandstätter et al., 2018), which can result in motivational problems and emotional distress (Brunstein, 2018). An example with regard to the achievement motive is that such an individual (C) does not experience any challenges in the current course of life despite an existing desire for challenges. This is due to the fact that the explicit achievement motive does not generate demanding achievement goals and rather achievement-neutral situations are preferred by the individual. Thus, the high implicit achievement motive from the above example "enjoyment of challenging situations" would be translated into no achievement goals and no achievement behaviour by a low explicit achievement motive "I am not an achievement-oriented person". As a result, the implicit motive is not satisfied (Brandstätter et al., 2018). In a motive incongruence type (D) with a low implicit but high explicit motive, goal-directed behaviour requires more discipline and effort, which also results in conflict. Performance goals that are based on a motivational

Self-image such as "I am an achievement-oriented person" cannot be energised by an implicit motive such as "no pleasure in challenging situations". In the absence of this source of energy, the drive to perform must come solely from social-evaluative incentives or the goal of wanting to conform to one's own self-image. Thus, action regulation through impulse suppression and incentive reinforcement requires more self-control (Brandstätter et al. 2018). As a strategy, however, this must be considered restrictive and cannot always be implemented adequately for all individuals (Brunstein, 2018).

Theoretical and empirical correlations

As already highlighted in section 2.2, implicit motives serve to experience certain incentives as rewarding and certain types of false incentives as aversive (Atkinson, 1957; Schultheiss, 2008). Schultheiss et al. (2010) illustrate that depending on the relationship between implicit and explicit motives, individuals react with positive affect (goal pursuit has a positive incentive), negative affect (goal pursuit has a negative incentive) or neutral affect (goal pursuit has no incentives or there is no suitable motive). This affective response is further used as a valid guide for deciding whether or not to pursue a goal (Schultheiss et al., 2010). Damasio (2000) describes emotions as relevant navigational aids that serve in the search for appropriate courses of action.
Continuing, Scheffner & Heckhausen (2018) explain emotions as a rudimentary motivational system that influences the interaction of implicit and explicit motives.

The famous quote by McClelland "Whatever the reasons for discordance between implicit and explicit motives, it can certainly lead to trouble" (McClelland et al., 1989, p.700) draws attention to negative consequences that can arise from motive incongruence. Baumann et al. (2005) argue that the conflict associated with motive incongruence can act as an unconscious continuous active stressor (*hidden stressor*). Similar to other stressors, it negatively affects various cognitive, affective and physiological processes (Brandstätter et al., 2018). Within three empirical studies, the hidden stressor was clarified by the motivational incongruence of the achievement motive by Baumann et al. (2005). Incongruence was described as an internally intransparent source of tension, whereby the interaction of

motivation and self-regulation is negatively affected. Direct correlations between affect regulation deficits and various psychosomatic symptoms have been empirically uncovered (Baumann et al., 2005). In addition to these findings, further empirical studies emphasise that motive incongruence negatively affects subjective well-being (Brunstein et al., 1995; Brunstein et al., 1998; Brunstein, et al., 1999; Brunstein, 2010). While motive congruence has positive effects on mental health, motive incongruence can increase the occurrence of various emotional impairments (Brunstein et al., 1998; Brunstein 2018; Hofer & Chasiotis, 2003; Kehr, 2004).

The empirical evidence that discrepancies between implicit and explicit motives result in significant disadvantages justifies the need to search for person-specific explanations and possibilities for change (Brandstätter et. al., 2018; Brunstein, 2018; Thrash et al., 2007). While McClelland (1987) downplays person factors that influence the interplay of implicit and explicit motives as exceptions and peculiarities, other researchers consider these characteristics crucial to understand why implicit and explicit motives are poorly aligned in most cases (Thrash et al., 2007).

McClelland's (1980) main explanation for a mostly missing correlation between implicit and explicit motives is that statistical independence is caused by an assumed independence of implicit and explicit motive development. As described in detail in section 2.2, implicit motives are assumed to develop early in life through non-verbal affective learning and explicit motives are assumed to be mediated later through verbal learning (McClelland, 1980; McClelland et al., 1989; McClelland & Pilon, 1983). McClelland et al. (1989) explain the existence of motive incongruence by the fact that implicit motives are not consciously perceived in most cases and therefore cannot serve as information for explicit goals. Another cause of motive incongruence and its consequences, according to McClelland et al. (1989), is an over-adaptation to environmental influences (such as social norms) and the accompanying neglect of internal sources of information.

Findings from motivation research show that, in addition to methodological prerequisites, the choice of moderators significantly influences the interaction of implicit and explicit motives (Hofmann et al., 2005; Thrash & Elliot, 2002; Thrash et al., 2007). Thrash et al. (2007), for example, have empirically demonstrated that a high

The private body consciousness sub-scale of the Miller et al. (1981) Body Consciousness Questionnaire is positively related to achievement motive congruence. Participants with good access to *private body consciousness* demonstrated greater motive congruence (Thrash et al., 2007). Five items were used to operationalise the conscious perception of inner body sensations, such as subjective sensitivity to body tension (Miller et al. 1981). This finding indicates that the implicit achievement motive might be indirectly accessible through conscious interoceptive perception. Thus, the researchers suggest that individuals who are aware of their internal bodily sensations experience their implicit achievement motive as felt bodily activation, mobilisation and spontaneous readiness to perform. According to Thrash et al. (2007), a frequently existing weak relationship between implicit and explicit motives may reflect the fact that most individuals do not have access to their implicit motives. For reasons of discrimination, the researchers tested a moderating effect of *private self-consciousness* within their study. This could not be confirmed. The items of the Self Consciousness Scale by Fenigstein et al. (1975) used in this study refer to the tendency to focus on thoughts and feelings. Thrash et al. (2007) interpret that exclusively cognitive and affective self-reflection is not sufficient for the presence of motive congruence. According to the researchers, the items of the Self Consciousness Scale probably draw more attention to the self-concept and related explicit motives and not to implicit motives, which means that there is no achievement motive congruence. However, it is hypothesised that the attentional focus on one's own body, the bodily effects of the implicit motive, could transfer to the consciousness level (Thrash et al., 2007).

Furthermore, Thrash et al. (2007) illustrate within their study that motive congruence is also present in individuals who have low *self-monitoring.* Self-monitoring was assessed using the Self-Monitoring Scale by Snyder and Gangestad (1986). Thus, there was a negative correlation between implicit and explicit achievement motive when attention was focused on social demands and expectations (Thrash et al., 2007). The previously listed justifications for the existence of motive incongruence from McClelland et al. (1989) are

supported by these study findings and the researchers' interpretations. For example, the findings of Thrash et al. (2007) suggest that implicit motives are often not consciously perceived and therefore cannot serve as information for explicit goals. Furthermore, the findings illustrate that over-adaptation to environmental influences and the accompanying neglect of internal sources of information can be another reason for motive incongruence. The researchers point out that implicit and explicit achievement motives are not independent for all individuals, but may be systematically related (Thrash et al., 2007).

Overall, the study findings of Thrash et al. (2007) suggest that a high preference *to* align cognitions (*preference for consistency*), as well as high private body awareness and low self-monitoring, promotes the development of a motivational self-image that corresponds to implicit motives. In addition to this study, other empirical findings also draw attention to the relevance of conscious internal body sensations or interoceptive perceptual processes (Adolphs et al., 2000; Dunn et al., 2007; Pollatos et al., 2005; Wiens, 2005). In the following section, this topic will be examined in more detail.

2.3. Interoceptive Awareness

The transparency of the body is described by phenomenologists as a preconditioning factor for one's own awareness and experience of individual reality (Allen & Tsakiri, 2019). The relevance of bodily and psychological interaction processes was already elucidated in the late 19th century. For example, William James (1884) and Carl Lange (1885) described emotions as a concomitant of inner bodily sensations at about the same time, thus founding the *James-Lange theory* (Herbert & Pollatos, 2008). Building on this, the *Somatic Marker Hypothesis* by Damasio et al. (1991) clarifies the importance of visceral perceptual processes for emotion processing, decision-making and motivational behavioural processes (Damasio, 1994). These theoretical assumptions have been confirmed by various empirical studies (Adolphs et al., 2000; Dunn et al., 2007; Pollatos et al., 2005; Wiens, 2005). Moreover, the importance of interoceptive perceptual processes for the formation of a subjective sense of self has been empirically clarified (Berlucchi & Aglioti, 2010; Craig, 2002, Craig, 2009; Park & Tallon-Baudry, 2014; Varela et al., 1991). Within psychology, medicine, body consciousness is

and neuroscience (Bornemann et al., 2015). This comprehensive construct generally defines the cognitive assessment of one's own body, including its sensory and motor abilities (Haug-Schnabel 2002). The traditional body-awareness construct was previously frequently used in studies with anxiety and panic patients to describe a cognitive attitude of patients characterised by an exaggerated focus on physical symptoms, rumination and catastrophic consequences. Accordingly, within medical and behavioural science, heightened awareness of somatic information has been viewed as potentially distressing and maladaptive. Findings from pain research contradict the traditional understanding of body consciousness and suggest that body consciousness is a complex, multidimensional construct that requires a more nuanced conceptualisation (Mehling et al., 2009).

In the course of historical development, the construct of *mindfulness* was therefore included in the understanding of body consciousness (Mehling et al., 2012). The concept of mindfulness originates from the Buddha's teachings, which are over 2,500 years old (Shapiro & Carlson, 2011). Buddha describes mindfulness as the conscious directing of attention to the awareness of physiological sensations, emotions and cognitions. In modern literature, this metacognitive *awareness is* also defined as *open awareness*. According to Buddhism, mindfulness is characterised in particular by *non-identification* with these conscious perceptions, as well as attention and emotion regulation (Sedlmeier, 2016). Mindfulness is described as an essential feature of the whole body consciousness construct (Leder, 1990; Varela et al., 1991). Interoceptive consciousness as a multidimensional body consciousness construct, is based on the principle of mindfulness. According to Mehling et al. (2012), for a unified understanding of body consciousness, the differential interaction processes between body and mind should be described in more detail. According to physiological, neuroscientific and biomedical findings, different dimensions of body consciousness can be distinguished from each other. Here, the conceptualisation of interoceptive consciousness goes back to the multidimensional understanding of interoception (Mehling et al., 2012).

Interoception was first defined by Sherrington (1906) and has a long history of development. Generally, interoception is defined as the connection

between body and brain based on the perception of signals internal to the body (Cameron, 2001; Allen & Tsakiris, 2019; Vaitl, 1996). Accordingly, interoceptive perceptions with endogenous origin have been distinguished from exteroceptive perceptions with exogenous origin (Mehling et al., 2012). Interoceptive perceptual processes were originally described by *viscероception* and *proprioception* (Jones, 1994; Vaitl, 1996; Mehling et al., 2012). Visceral perception describes the conscious *perception* of one's own organ activity, such as breathing and heartbeat (Mehling et al., 2012). This also includes the accuracy (*interoceptive sensitivity)* and intensity of the perception (Herbert & Pollatos, 2008). These visceral perceptual processes are often also defined as *interoceptive sensitivity* (Bornemann et al., 2015; Critchley et al., 2004) and *interoceptive accuracy* (Bornemann et al., 2015; Bornemann, 2017).

Proprioception describes the physiological perception of joints, muscles and tendons (Mehling et al., 2012; Truffer, 2017). Neuroanatomical findings draw attention to the fact that interoception describes a physiological perception process that exclusively concerns visceral signals (Craig, 2002). Based on this finding, the term interoception is also synonymously referred to as viscероception in some publications (Schultchen, 2020). As already highlighted, the conceptualisation of interoceptive awareness is based on the multidimensional understanding of interoception (Mehling et al., 2012).

Interoceptive awareness is defined within this research as the conscious interoceptive perception (of visceral and proprioceptive signals), with higher order interacting psychological processes included in this understanding (Bornemann et al., 2015; Cameron, 2001). Thus, interoceptive awareness is also influenced by emotions, cognitions, experiences and biases that interact with interoceptive perceptual processes (Bornemann et al., 2015; Mehling et al. 2012).

Attribution processes that affect interoceptive awareness (Bornemann et al., 2015; Cameron, 2001; Craig, 2002; Mehling et al., 2009) influence motivational, emotional and volitional processes (Weiner, 1986). It is emphasised that interoceptive consciousness processes are always subjectively shaped (Ceunen et al., 2016; Mehling et al. 2012; Nuyken, 2019).

The result of a confirmatory factor analysis conducted to determine the construct confirmed the following eight dimensions of interoceptive awareness: noticing, non-distraction, not worrying, attention regulation, emotional awareness, self-regulation, listening to the body and trust (Mehling et al., 2012). The first dimension, *Noticing,* describes the conscious awareness of inner bodily sensations. The second dimension, *non-distraction, refers to* the ability to consciously pay attention to negative sensations such as physical pain. The third dimension of not *worrying* represents the tendency to remain emotionally stable despite unpleasant sensations and not to worry because of pain. The fourth dimension *Attention Regulation* describes the degree of attention focus on physiological sensations. The fifth dimension *Emotional Awareness* refers to the conscious awareness of the interaction of psyche and body. The sixth dimension *Self-Regulation* represents the ability to regulate unpleasant perceptions through physical attention control. The seventh dimension of *listening to the body* describes the behavioural tendency to adapt to physical sensations, to listen to them and to learn from them. Finally, the eighth dimension *Trust* refers to the tendency to experience one's own body as trustworthy and to rely on it (Bornemann & Mehling, 2012).

These dimensions of interoceptive awareness can be measured by means of the corresponding scales of the Multidimensional Assessment of Interoceptive Awareness (MAIA) by Mehling et al. (2012). The self-report measure was first published in its original English version in November 2012. Due to the low internal consistency of two scales, a revision was made approximately six years later (Mehling et al., 2018). The German translation of the revised version (MAIA-2) was published in June 2021 and is also based on the described eight dimensions of interoceptive awareness (Bornemann et al., 2015; Eggart et al., 2021). The self-report measure was especially made for studies to investigate multidimensional interaction processes of body and psyche (Mehling et al., 2012). As the MAIA-2 was included as a measurement tool in this research, it will be discussed in more detail in section 4.3.3.

2.4. Derivation of the research needs

Although the concept of motivational congruence and incongruence is gaining increasing attention in research (Brunstein, 2018), no empirical connections to interoceptive awareness could be found within the editing process of this research. However, as shown in section 2.3, interoceptive perceptual processes influenced motivational, emotional and volitional processes. Accordingly, it seems highly relevant to examine this topic area in more detail. The study findings of Thrash et al. (2007), detailed in section 2.2.2, suggest that the ability to consciously perceive inner bodily sensations (private body awareness) promotes the development of a motivational self-image that fits the implicit motive. A high score on the Private Body Consciousness subscale of the Body Consciousness Questionnaire by Miller et al. (1981) was positively related to achievement motive congruence in their study (see section 2.2.2). Within the study by Thrash et al. (2007), however, the conscious perception of inner body sensations was not recorded on a multidimensional level, as would be possible with the MAIA-2 by Bornemann et al. (2015) and Eggart et al. (2021). Within the present research, we will examine whether the mindfulness-based emotional and metacognitive components of interoceptive awareness, which interact with the conscious perception of inner bodily sensations (Craig, 2010; Damasio, 1994, Mehling et al., 2012), also positively influence the relationship between the implicit and explicit performance motive. In line with the interpretations of Thrash et al. (2007), it is assumed that interoceptive perception could transfer the physical effects of the implicit motive to the level of consciousness. Individuals with high interoceptive awareness could be congruent in their implicit and explicit achievement motives, as they orient their explicit motives to deep-seated affect-based needs (implicit motives).

Although Thrash et al. (2007) were able to conclude from the non-existent moderating effect of private self-confidence that exclusively cognitive and affective self-reflection is not sufficient for the presence of achievement motive congruence (see section 2.2.2), a moderating effect of the scales of the MAIA-2 cannot thus be ruled out. As described in section 2.2.2, the scales refer to

the corresponding items of the Self Consciousness Scale by Fenigstein et al. (1975) on the ability to consciously perceive thoughts and feelings. According to Mehling et al. (2009), this operationalises an individual's self-awareness/self-image independently of bodily sensations and interoceptive processes (Mehling et al., 2009). Since self-reflection is seen as an integral part of interoceptive perceptual processes (Mehling et al. 2012; Miller et al., 1981), this research will examine whether the connection between the implicit and explicit achievement motive is also positively influenced by a high expression on the scales of the MAIA-2.

Mehling et al. (2012) were able to empirically confirm that the constructs of private body consciousness and interoceptive consciousness overlap. In testing the construct validity of the MAIA, the Private Body Consciousness Sub-Scale was correlated with each scale of the MAIA individually. The scales Attention Regulation (r = .43, p < .0001) and Noticing (r = .40, p < .0001) showed the most significant correlations. Contrary to the expectations of Mehling et al. (2012), the positive correlation (r = .43, p < .0001) was only found for the scale Don't worry.

.01) according to Cohen (1988) clearly below a small effect. These results were similarly confirmed by Bornemann et al. (2015) with the German version of the

of the MAIA could be confirmed. The highest significant correlations with the Private Body Consciousness Sub-Scale were found in the scales Emotional Awareness (r = .43, p < .001) and noticing (r = .42, p < .001; Bornemann et al., 2015). The present research work thus builds on the findings of Thrash et al. (2007). Furthermore, other aspects are taken into account that have received little interest in motivation and consciousness research so far.

The fact that interoceptive awareness is related to basic personality traits was confirmed by a recent validation study of the MAIA by Ferentzi et al. (2021). Using the HEXACO Personality Inventory by Ashton and Lee (2007), a total of six personality dimensions were recorded (Ferentzi et al., 2021). The personality dimension Emotionality, which is comparable to the Big Five personality trait Neuroticism (Baiocco et al., 2017), correlated significantly negatively with the MAIA scales Worry-Not, Attention-Regulation, Self-Regulation, Listening to the Body and Trust. The personality dimension Openness correlated significantly positively with the scales Noticing,

Attention regulation, emotional awareness, self-regulation, listening to the body and trust (Ferentzi et al., 2021).

Complementing these findings, Pearson and Pfeifer (2020) empirically demonstrated that interoceptive awareness is related to *neuroticism-stability* (*EPI).* In their study, neuroticism was operationalised using the Eysenck Personality Inventory (Eysenck & Eysenck, 1964). The different dimensions of interoceptive awareness were measured using the MAIA scales of Mehling et al. (2012). Since some items of the MAIA operationalise more pleasant and other items more unpleasant aspects of interoceptive awareness, higher emotional stability and low neuroticism were associated with higher scores on more pleasant interoceptive awareness. A high score on the trust scale was found to be the best predictor of a low neuroticism score, illustrating this relationship. Similarly, the second predictor, self-regulation, demonstrates the ability of emotionally stable participants to regulate emotions and sensations according to their awareness (Pearson & Pfeifer, 2020). Pearson and Pfeifer's (2020) findings are in line with the empirical findings of Mallorquí-Bagué et al. (2014), which demonstrate significant negative correlations between neuroticism and the MAIA scales Attention Regulation, Self-Regulation and Confidence. Another finding by Pearson and Pfeifer (2020) was that only the Noticing scale was positively
correlated with neuroticism. This correlation was explained by the increased autonomic reactivity of neurotic test participants, as neuroticism increases sensitivity to bodily sensations (Pearson & Pfeifer, 2020). The significant predictive relationships of the dimensions of interoceptive awareness with neuroticism are also consistent with previous empirical findings (Critchley et al., 2004; Dunn et al., 2010; Ehlers et al., 2000; Ewing et al., 2017; Mallorquí-Bagué et al., 2014; Pollatos et al., 2007).

In an empirical MRI/fMRI study by Vachon-Presseau et al. (2018), the Big Five personality trait Openness, measured by the NEO-FFI, was examined in more detail. The researchers report that Openness is predominantly positively related to the scales of the MAIA by Mehling et al. (2012). The scales Attention Regulation, Emotional Awareness and Self-Regulation correlated significantly positively with openness. Only the scale Non-Distraction correlated significantly negatively with openness.

However, like many other studies that empirically investigated interoceptive processes, this study was limited to a specific population group. These results refer exclusively to back pain patients (Vachon-Presseau et al., 2018), which is why the findings will be replicated within the present research using a non-clinical sample.

Due to the narrow range of empirical studies investigating the relationship between interoceptive awareness and personality traits, as well as differential conceptualisations and operationalisations, there is relevance to further explore this topic area. In summary, the presented research findings serve as an indication that the Big Five personality traits neuroticism and openness might also be significantly related to interoceptive awareness. This will be empirically tested within the present research.

In addition to the investigation of interoceptive awareness, behavioural aspects will be empirically analysed within this research work. For this purpose, the probability of dropping out of the online survey will be examined and related to the characteristics of the implicit and explicit performance motive of the test participants. It is assumed that participation in the online survey represents a performance to be achieved.

As highlighted in section 2.2, a difficulty incentive could stimulate the affect-driven need of an individual with a high implicit achievement motive to complete a challenging task. For example, a high implicit achievement motive of "pleasure in participating in empirical online surveys" could be translated into a corresponding achievement goal and behavioural performance (complete the online survey) via a high explicit achievement motive of "I am an achievement-oriented person". Successful behavioural performance could further trigger the feeling of pride, thereby satisfying the implicit achievement motive (Brandstätter et al., 2018). As highlighted in section 2.2, when the implicit achievement motive is high, the incentive to act comes exclusively from the performance requirements set, which participants with high expectations of their own would like to master as best as possible (Brunstein, 2018). Accordingly, it is reasonable to assume that test participants with a high (energising) implicit achievement motive (McClelland et al. 1989) will have the

study are more likely to complete the study than participants with a low implicit achievement motive.

As also illustrated in section 2.2, an explicit achievement motive is activated in particular by external requirements and regulations (Brunstein, 2018). The distribution of the study could contribute to the fact that a high explicit achievement motive is also stimulated by test participants. In particular, extrinsically motivated friends and family members of the author of this research paper, could potentially complete the study in its entirety in order to impress the author, make her happy or/and not disappoint her. As Patten and White (1977) published, individuals with a high explicit achievement motive often do not exert themselves until they can demonstrate socially recognised skills (see section 2.2). Dropping out of the study would probably violate the general norms and rules in the sense of most participants in the experiment and would not contribute to the maintenance and optimisation of a positive self-image (such as "I have done something meaningful, I am disciplined and achievement-oriented"). In addition, an external incentive for students at the University of Trier could be the pre-promised subject hours they are credited with after full study participation (see section 4.4). Action regulation requires more self-control in the case of performance goals generated exclusively on the basis of a motivational self-image through impulse suppression and incentive reinforcement (Brandstätter et al. 2018). Due to the fact that implicit motives energise behavioural performance and explicit motives guide concrete behaviour (McClelland et al. 1989), the assumption is supported that test participants with a high explicit performance motive are also more likely to complete the study than test participants with a low explicit performance motive. Within the present research work, these assumptions are to be empirically tested.

3 Derivation of the hypotheses

Based on the theoretical background (see chapter 2), topic-specific questions remain unanswered, which are listed in the following section 3.1. The hypotheses derived from these questions are then discussed in section 3.2.

tabulated. As noted in section 2.3, interoceptive awareness is subjective self-report.

3.1. Questions

1. Does the relationship between the implicit and explicit achievement motive become significantly more positive with higher interoceptive awareness?

2. Is the dispositional personality trait neuroticism significantly negatively related to interoceptive awareness (except for the Noticing scale, which is significantly positively related to interoceptive awareness)?

3. Is the dispositional personality trait Openness significantly positively related to interoceptive awareness (except for the scale Non-Distraction, which is significantly negatively related to interoceptive awareness)?

4. a) Is the dropout probability of participants with a high implicit achievement motive significantly lower than that of participants with a low implicit achievement motive?

   b) Is the dropout probability of participants with a high explicit achievement motive significantly lower than that of participants with a low explicit achievement motive?

3.2. Hypotheses

As noted in section 2.3, interoceptive awareness as a multidimensional construct comprises eight different dimensions. These dimensions can be operationalised using the corresponding scales of the MAIA-2 by Bornemann et al. (2015) and Eggart et al. (2021). According to empirical findings

suggested that each dimension of interoceptive awareness should be investigated separately (Bornemann et al., 2015). Hypotheses H1, H2, H3, H4a and H4b are listed below. In the further course of the research work, these will be analysed in more detail through the statistically tested sub-hypotheses (see Appendix D).

H1	With higher interoceptive awareness, the connection between implicit and explicit achievement motives are significantly more positive.

H2	Neuroticism is significantly negatively associated with the interoceptive awareness (except for the Noticing scale, which is significantly positively related to interoceptive awareness).

H3	Openness is significantly positively correlated with interoceptive awareness (except for the non-distraction scale, which is significantly negatively related to interoceptive awareness).

H4a	The higher the implicit achievement motive is, the lower is the Abandonment probability of the online survey.
H4b	The higher the explicit achievement motive is, the lower is the Abandonment probability of the online survey.

4 Methodology

This chapter explains how the hypotheses were empirically tested within this research. First, section 4.1 explains the research design used. Subsequently, section 4.2 explains how this was implemented in practice. The measurement instruments used are discussed in more detail in section 4.3. Section 4.4 describes the sample in more detail. The final section, 4.5, introduces the statistical data analysis.

4.1. Research design

This empirical research investigates the cross-sectional relationships of achievement motive congruence with interoceptive awareness. To test H1, it was investigated whether the dimensions of interoceptive awareness act as moderators to predict congruence between implicit (UV) and explicit achievement motive (AV). To examine H2, the relationship of the Big Five personality trait neuroticism (UV) with the dimensions of interoceptive awareness (AV) was tested. The H3 tests the relationship of the personality trait Openness (UV) with the dimensions of Interoceptive Awareness (AV). For the examination of H4a, it was tested whether a high implicit achievement motive (UV) is significantly related to a lower probability of dropping out of the online survey (AV). Finally, to test H4b, it was determined whether a high explicit achievement motive (UV) is significantly related to a lower probability of dropping out of the online survey (AV).

4.2. Implementation

For the empirical research process, a quantitative online survey was set up with the programme *Enterprise Feedback Suite Survey. The* programme belongs to the company *Tivian XI GmbH*, which offers a licence model for academic institutions under the name *Unipark.* The University of Trier also participates in this (Baltes-Götz, 2020). The questionnaire used consisted of various measurement instruments, which are described in section 4.3. Overall, the research process was programmed and the programme was accessed via the internet.

In addition, the participants in the experiment did not come into personal contact with an experimenter. Accordingly, this is an *internet experiment,* through the use of which the objectivity of the online survey was improved (Huber, 2013). A pretest with selected participants enabled technical, methodological and content-related corrections to be made in advance.

4.3. Measuring instruments

The online survey (online questionnaire) consisted of a total of four different measurement instruments, which are described in more detail in the following sections. The order of the measuring instruments listed here corresponds to the structure of the questionnaire. Socio-demographic data, as well as additionally collected variables, were collected at the end of the questionnaire and are documented in Appendix E of this research paper. The completion time for the entire online survey was approximately 45 minutes. As the answers of the test participants are based on self-assessment, the results are not independent of the test participants. To ensure a high degree of objectivity in the evaluation of the measurement instruments, standardised scoring instructions were available in each case and used for the data evaluation.

4.3.1. Picture Story Exercise

At the beginning of the online questionnaire, the implicit achievement motives of the test participants were collected using the PSE of Schultheiss and Pang (2007; see section 2.2.1). For this purpose, the following four pictures were used: "women in laboratory" (McClelland, 1975), "boxer" (McClelland & Steele, 1972), "trapeze artists" (McClelland, 1975) and
"architect at desk" (McClelland, 1975; Smith, 1992). The order listed corresponds to the order in the questionnaire, so that females and males were presented to the test participants in alternating order. The PSE images are provided on the publicly available *OSF database* by Schönbrodt et al. (2018) and deposited in Appendix F of this research paper. As the images used have a particularly high achievement pull (Schönbrodt et al. 2021), they were selected for use in the online survey conducted. The PSE part was set up in *Unipark in* such a way that first one image was displayed on each page for 30 seconds. As soon as the 30 seconds were up, the page with the picture was automatically sent off. On the next page, the following four questions were displayed above a text field: "What is happening in the picture, who are the people? How did the situation come about; how did the story begin? What are the characters thinking about, what do they want and how do they feel? What will happen, how will the story end?". This page could be finished after at least two

minutes by pressing the "Next" button and was automatically sent after four and a half minutes (270 seconds) at the latest.

For the scale formation, a residualisation of the PSE was carried out. For this purpose, the correlation of the number of words and the number of codes was adjusted for the variance explained by the number of words alone (Schönbrodt et al., 2021).

4.3.2. GOALS

In the second part of the online questionnaire, the explicit achievement motive of the test participants was collected by means of four items of the goal category achievement and the scale (dimension) *importance of* the already validated life goal questionnaire GOALS by Pöhlmann and Brunstein (1997; see section 2.2.1). The content area achievement of the GOALS was designed according to the motive classification of McClelland (1985) and McAdams (1988). The goal attribution importance describes the subjective significance of the goal as well as the extent of commitment to the goal. Using a five-point Likert scale (1 = *not important to* 5 = *very important*), a nomothetic assessment was made of how important it is to the test participants, for example, to continue their education. All four items of the GOALS are formulated independently of context. The GOALS life goal questionnaire is theoretically and empirically sound and can be used economically and in a variety of ways.
Accordingly, it can be used in basic as well as applied research (Pöhlmann & Brunstein, 1997).

The scale for the explicit achievement motive was formed by the arithmetic mean of the four items. The reliability was Cronbach's α = .88.

4.3.3. Multidimensional Assessment of Interoceptive Awareness, Version 2

The third part of the online questionnaire served to operationalise the interoceptive awareness of the test participants. The data collection was based on the MAIA-2 by Bornemann et al. (2015) and Eggart et al. (2021). According to Mehling et al. (2012), the multidimensional self-report measure is based on an extensive literature review of existing psychometric tests and standardised questionnaires. The MAIA-2 was validated on a clinical sample (depression patients) (Eggart et al., 2021). The differential results of the scales of the MAIA from the longitudinal study by Bornemann et al. (2015) draw attention to the fact that the

interoceptive awareness should be assessed multidimensionally. The MAIA-2 comprises a total of 37 items, which are divided into eight differentiated scales. The scales of the MAIA-2 are defined according to the dimensions of interoceptive awareness (see section 2.3). Using a 6-point Likert scale (0 = *never* to 5 = *always*), the participants were asked to notice (example item no.1: "When I am tense, I notice where in my body the tension occurs"), not to be distracted (example item no.5:
"I ignore physical tension or discomfort until it becomes stronger"), Not worrying (example item no.11: "When I have physical pain, I get angry."), Attention regulation (example item no.16: "I can pay attention to my breathing without being distracted by what is going on around me."I can pay attention to my breathing without being distracted by what is happening around me."), Emotional awareness (example item no.23: "I notice how my body changes when I am angry."), Self-regulation (example item no.28: "When everything gets too much for me, I can find a place of calm within myself."), listening to my body (example item no. 33: "When I am upset, I take time to find out how my body feels."), trust (example item no. 36: "I feel my body is a safe place.") personally (subjectively) assess. The fifth, sixth, seventh, eighth, ninth and tenth items of the Non-Distraction scale and the eleventh, twelfth, thirteenth, fourteenth and fifteenth items of the Don't Worry scale were inverted in the evaluation (Mehling et al. 2018).

The eight scales of the MAIA-2 were formed by determining the arithmetic mean of the respective items. The reliability for the Noticing scale was Cronbach's α = .70, for Non-Distraction Cronbach's α = .89, for Not Worrying Cronbach's α = .71, for Attention Regulation Cronbach's α = .87, for Emotional Awareness at Cronbach's α = .83, for Self-Regulation at Cronbach's α = .90, for Listening to the Body at Cronbach's α = .89 and for Trust at Cronbach's α = .90.

4.3.4. 30 item short version

In the subsequent fourth part of the online questionnaire, the dispositional personality traits openness and neuroticism were assessed with the NEO-FFI-30 by Körner et al. (2008). The first scale for neuroticism (sample item no. 21:
*"*I often feel tense and nervous*")* and the third scale for openness (example item no. 13: "I am inspired by the motifs I find in art and nature").

Six items are each assigned to a scale. The participants' self-assessment is based on the degree of agreement with a five-point Likert scale (from 0 = *strongly disagree* to 4 = *strongly agree*). The NEO-FFI-30 is based on its predecessor, the NEO-FFI by Costa and McCrae (1989) and thus originates from the theories and methods of factor analysis described in section 2.1.3. Based on the results of an empirical study by Körner et al. (2002), the original version was optimised in terms of psychometric properties and shortened and validated for more economical use (Körner et al., 2008). The first, third and fifth items of openness were inverted in the evaluation.

For both scales (openness and neuroticism), the arithmetic mean was calculated on the basis of the corresponding items, taking into account the inverted items. The reliability for openness was Cronbach's α = .76. The reliability for neuroticism was Cronbach's α = .88.

4.4. Sample

The online survey was distributed in particular via social networks such as *Facebook, Instagram, Whatsapp*, topic-related forums and blogs. The *snowball method* (Bortz & Döring, 2006) was used to recruit a large number of participants. In addition, trial participants were acquired via e-mail distribution lists from various institutions and organisations. Students of the *University of Trier were* credited with 0.75 trial participant hours via the cloud-based *SONA system* after full study participation. The target group was deliberately kept open and there were no specific exclusion criteria for participation in the survey. Accordingly, this was a random selection of trial participants (Fantapiè Altobelli, 2007). Data collection began on 10 March 2022 and ended on 28 March 2022. The survey consent form included an email address to which questions or suggestions about the online survey could be sent.

A total of 670 trial participants took part in the online survey.
Of this total number, over 65% of the participants had to be excluded from the data analysis because they dropped out of the survey before the GOALS. 229 participants completed the survey up to and including the GOALS.

Survey completed. 34 test participants were removed from the sample because they did not write a total of at least 120 words in their four written down stories (PSE). This criterion was set according to the recommendations of Smith, Feld, & Franz (1992) and was intended to increase the validity of the online survey. For these reasons, a further eight test participants were removed because they indicated in the survey that they did not have *German as* their *mother tongue*. Another participant was deleted from the sample data set because she indicated that she did *not seriously* participate in the survey. This left a total sample size of 186 participants. Of these, 15 participants were defined as dropouts (8.1%) and 171 participants as non-dropouts (91.9%). The dropouts completed the survey up to and including GOALS and did not answer any further questions thereafter. The non-dropouts completed the survey in full.

In terms of socio-demographic aspects (see Appendix E), this sub-sample can be described in more detail: 142 trial participants (83.0%) have indicated that they belong to the female gender (83.0%), 28 trial participants (16.4%) to the male gender and one trial participant (0.6%) to a diverse gender. The biological age of the non-dropouts ranged from 14 years to 77 years (M = 31.51; SD = 13.31). Two participants (1.2%) stated that they had not yet completed their education. Seven participants (4.1%) stated that their highest level of education was a secondary school diploma. 74 trial participants (43.3%) stated that they had achieved the Abitur. 45 participants (26.3%) stated that they had completed vocational training as their highest level of education. 40 participants (23.4%) stated that they have a university degree (Bachelor, Master, Diploma or similar). Three participants (1.8%) stated that they had a doctorate and/or a licence to practise.

In addition to socio-demographic questions, the degree of meditation experience as well as the practice/non-practice of other mind-expanding practices (such as yoga, tai chi or qigong) was surveyed. 38 participants (22.2%) reported no meditation experience, 97 participants (56.7%) reported some meditation experience, 29 participants (17.0%) reported regular meditation experience.

and 7 participants (4.1%) reported daily meditation experiences. 60 participants (35.1%) reported other mind-expanding experiences.

practices in everyday life. 111 participants (64.9%) reported no other mind-expanding practices in their daily lives. The sample data set described was not always constant in all studies. Due to missing values in the MAIA-2, additional participants were sometimes excluded for the calculation of individual scales. These accounted for less than 5% of the sample.

4.5. Statistical Data evaluation

The PSE stories were coded by a trained research assistant from the University of Trier according to Winter's (1994) coding system. After the coding of the PSE for the implicit achievement motives was completed, the statistical analysis of the data took place. The statistical software *IBM SPSS Statistics Version 28* was used for this. For the statistical data analysis, the individual variables were first named and coded. Then the optimal scale level was entered.

5 Statistical Results

The following statistical results are intended to answer the questions posed in section 3.1. For this purpose, the respective sub-hypotheses of H1, H2 and H3 (see Appendix D) as well as H4a and H4b were statistically tested. The results of H1, H2 and H3 are not based on the total sample, as dropouts were not included for these analyses (see section 4.4). Instead, these results are based on the sub-sample (non-dropouts) described in section 4.4, where there was no significant bivariate relationship between implicit and explicit achievement motive.
In addition, explorative analyses were carried out, which are documented in Appendix I of this research paper. A summary of the relevant statistical results and their interpretation is presented in Chapter 6.

5.1. Descriptive Results

The descriptive results of the scales examined are summarised in Table 1. Since the scaling of the implicit achievement motive is based on a

residualisation according to Schönbrodt et al. (2021) took place (see section 4.3.1), the mean value of this variable was zero.

Table 1

Sample size, minimum, maximum, mean and standard deviation for all variables

	N	Min	Max	*M*	*SD*
Explicit Performance	186	1.00	5.00	3.99	0.86
Implicit motive	186	-4.76	4.52	0.00	1.77
Neuroticism	170	0.17	4.00	2.03	0.93
Openness	170	0.50	4.00	2.71	0.71
Note	175	0.25	5.00	3.42	0.88
Non-distracting	171	0.00	4.83	2.09	1.02
Don't worry	172	0.00	4.80	2.33	0.89
Attention-Making	169	0.00	5.00	2.75	0.94
Emotional Self-regulation	171	0.80	5.00	3.70	0.94
Listening to the Body	172	0.00	5.00	2.47	1.28
Trust	171	0.00	5.00	2.36	1.19
Awareness	172	0.00	5.00	3.12	1.33

Notes. Min = Minimum, Max = Maximum.

As shown in Table 2, implicit and explicit achievement motives correlated slightly positively with each other in the total sample (r = .19, p < .01). The explicit achievement motive correlated slightly positively with listening to others (r = .18, p < .05) and openness (r = .24, p < .001). The implicit achievement motive correlated slightly positively with neuroticism (r = -.16, p < .05).

Table 2

Product-moment correlations of the variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Explicit achievement motive	186								
2. Implicit achievement motive	.19**	186							
3. Note	.17*	-.04	175						
4. Non-distracting	-.07	.09	.32***	171					
5. Don't Worry	.05	.17*	.05	.24***	172				
6. Attention regulation	.12	.01	.47***	.35***	.29***	168			
7. Emotional Awareness	.11	-.12	.65***	.30***	.07	.46***	171		
8. Self-regulation	.02	.02	.47***	.48***	.28***	.69***	.51***	172	
9 Listening to the Body	.18*	.04	.49***	.58***	.24***	.61***	.46***	.64***	171
10. Trust	.10	.04	.26***	.42***	.23***	.57***	.40***	.56***	.50***
11. Openness	.24***	-.13	.17*	.02	.10	.20**	.09	.13	.21**
12. Neuroticism	-.02	-.16*	-.12	-.39***	-.37***	-.38***	-.15*	-.44***	-.32***

10.	11.	12.
172		
.02	170	
-.59***	-.01	170

Notes.: Numbers in the diagonal represent *N of* the corresponding variable.
* $p < .05$, ** $p < .01$, *** $p < .001$.

5.2. Verification of H1: Motive congruence

H1 was tested by a total of eight moderation analyses. This determined whether the interaction between the individual dimensions of interoceptive awareness (moderator variable) and the implicit achievement motive (UV) significantly predicted the explicit achievement motive (AV). A moderation analysis was calculated for each scale of the MAIA-2 (H1a-H1h). Hierarchical moderated regressions were calculated for the prediction of the explicit achievement motive. In the first block, the implicit achievement motive was included in the model. In the second block, the MAIA-2 scale, which is centred in each case, was additionally included in the model using the inclusion procedure. In the third block, the interaction term between the implicit achievement motive and the respective MAIA-2 scale is added. For the statistical conclusion (whether moderation is present or not), only the third block (significance test of the interaction term) was taken into account. The preconditions for moderation were checked and confirmed in each case beforehand. The statistical results for the H1 of the individual scales of the MAIA-2 are presented below.

5.2.1. H1a: Remark scale

The result of block 1 showed that there was no significant relationship between the implicit (UV) and explicit achievement motive (AV), b = 0.024, SE = 0.032, $\beta = .057$, $p > .05$, 95% $_{Clb}$[-0.039, -0.086], $F(1, 173) = 0.554$, $p > .05$, $R^2 = .003$. The
Adding the moderator Remark in the second block caused a significant change

of the variance explained of 3.1% (change in R^2 = .031, p < .05). The result of block 2 proved that there was a significant relationship between noticing and explicit achievement motive (AV), b = 0.140, SE = 0.060, β = .176, p < .05, 95% CI_b[0.022, 0.258], F(2, 172) = 3.042, p = .050, R^2 = .034. The relationship between implicit and explicit achievement motive was still not significant.

Adding the interaction term in the third block to test the moderation hypothesis caused a significant change in the variance explained of 2.6% (change in R^2 = .026, p < .05). The overall model for block 3 was significant, F(3, 171) = 3.623, p < .05 and achieved a variance elucidation of 6.0% (R^2 = .060). The moderation analysis result evidenced a significant moderation effect of remarking on the relationship between implicit achievement motive (UV) on explicit achievement motive (AV), b = -0.073, SE = 0.034, β = -.160, p < .05, 95% CI_b[-0.140, -0.006].

In addition, a significant main effect was demonstrated for noticing, b = 0.138, SE = 0.059, β = -.173, p < .05, 95% CI_b[0.021, 0.254]. However, there was no significant main effect for implicit achievement motive, b = 0.027, SE = 0.031, β = .065, p > .05, 95% CI_b[-0.034, 0.088].

Figure 6 (see Appendix G) illustrates that with a low expression of noticing (-1 SD), the relationship between the implicit and explicit achievement motives was positive, β = .092, SE = 0.043, p < .05, 95% CI[.006, .177]. The effect sizes for medium and high levels of noticing were so small (|β| < .038) that they did not become significant (p > .05). As there was no significant positive correlation between implicit and explicit achievement motives with higher levels of noticing, H1a was rejected.

5.2.2. H1b: Non-distraction scale

The result of block 1 proved that there was no significant relationship between the implicit (UV) and explicit achievement motive (AV), b = 0.008, SE = 0.029, β = .020, p > .05, 95% CI_b[-0.050, 0.066], F(1, 169) = 0.071, p > .05, R^2 < .001. Adding. of the moderator non-distraction in the second block did not cause a significant change in the variance explained (change in R^2 = .005, p > .05). The result of block 2 showed that there was no significant relationship between non-distraction and the explicit achievement motive (AV), b = -0.044, SE = 0.049, β = -.070, p > .05, 95% CI_b[-0.141,

0.052], F(2, 168) = 0.446, p > .05, R^2 = .005. The relationship between implicit and explicit achievement motive was still not significant.

Adding the interaction term in the third block to test the moderation hypothesis did not significantly change the variance explained (change in R² = .002, p > .05). The overall model for block 3 was not
significant, F(3, 167) = 0.408, p > .05, R^2 = .007. The result of the moderation analysis proved that there was no significant moderation effect of non-distraction on the relationship between implicit achievement motive on explicit achievement motive, b = -0.015, SE = .025, β = *-.046*, p > .05, 95% CIb[-.065, .036]. Accordingly, H1b was rejected in favour of H0. There was also no significant main effect for non-distraction, b = -0.040, SE = 0.049, β = -.064, p > .05, 95% CIb[-0.138, 0.057]. Furthermore, there was no significant main effect for the implicit achievement motive, b = 0.012, SE = 0.030, β = .033, p > .05, 95% CIb[-0.047, 0.072].

5.2.3. H1c: Don't worry scale

The result of block 1 showed that there was no significant relationship between the implicit (UV) and explicit achievement motive (AV), b = 0.014, SE = 0.030, β = *.037*, p > .05, 95% CIb[-0.045, 0.074], F(1, 170) = 0.232, p > .05, R^2 = 0.001. Adding
The addition of the moderator not to worry in the second block did not significantly change the variance explained (change in R^2 = .002, p > .05). The result of block 2 proved that there was no significant relationship between not worrying and the explicit achievement motive (AV), b = 0.035, SE = 0.058, β = -.047, p > .05,
95% CIb[-0.080, 0.149], F(2, 169) = 0.294, p > .05, R^2 = .003. The relationship between implicit and explicit achievement motive was still not significant.

Adding the interaction term in the third block to test the moderation hypothesis did not significantly change the variance explained (change in R² = .006, p > .05). The overall model for block 3 was not
significant, F(3, 168) = 0.515, p < .05 , R^2 = .009. The result of moderation analysis showed that there was no significant moderation effect of not worrying on the relationship between implicit achievement motive on explicit achievement motive, b = 0 .032, SE = 0.033, β = .078, p > .05, 95% CIb[-0.033, 0.097]. Therefore, the H1c
rejected in favour of H0. Furthermore, there was no significant main effect for None-.

Worrying before, b = 0.019, SE = 0.060, β = .026, p > .05, 95% $_{CIb}$[-0.099, 0.138]. In addition, there was no significant main effect for the implicit achievement motive, b = 0.013, SE = 0 .031, β = .034, p > .05, 95% $_{CIb}$[-0.047, 0.074].

5.2.4. H1d: Attention regulation scale

The result of block 1 illustrated that there was no significant relationship between the implicit (UV) and explicit achievement motive (AV), b = 0.011, SE = 0.029, β = .029, p > .05, 95% $_{CIb}$[-0.047, 0.069], F(1, 167) = 0.138, p > .05, R² = .001. The
Adding the moderator attentional regulation in the second block did not significantly change the variance explained (change in R² = .014, p > .05). The result of block 2 proves that there was no significant relationship between attentional regulation and the explicit achievement motive (AV), b = 0.079, SE = 0.052, β = .116, p > .05, 95% $_{CIb}$[-0.024, 0.181], F(2, 166) = 1.212, p > .05, R² = .014. The
The correlation between implicit and explicit achievement motives was still not significant.

Adding the interaction term in the third block to test the moderation hypothesis did not significantly change the variance explained (change in R² = .002, p > .05). The overall model for block 3 was not significant,
F(3, 165) = 0.892, p > 0.5 , R^2 = .016. The result of moderation analysis showed that there is no significant moderation effect of attentional regulation on the relationship between implicit achievement motive on explicit achievement motive, b = -0.015, SE = 0.029, β = -.040, p > .05, 95% $_{CIb}$[-0.073, 0.043]. Therefore, H1d is rejected in favour of H0. There is no significant main effect for attention regulation, b = 0.084, SE = 0.053, β = .124, p > .05, 95% $_{CIb}$[-0.021, 0.188]. In addition, there is no significant main effect for implicit achievement motive, b = 0.012, SE = 0.029, β = .031, p > .05,
95% $_{CIb}$[-0.046, 0.070].

5.2.5. H1e: Emotional Awareness Scale

The result of block 1 showed that there was no significant relationship between the implicit (UV) and explicit achievement motive (AV), b = 0.008, SE = 0.031, β = .020, p > .05, 95% $_{CIb}$[-0.053, 0.069], F(1, 169) = 0.067, p > .05, R^2 < .001. adding
of the Emotional Awareness facilitator in the second block did not cause any significant

Change in variance explained (change in R^2 = .012, p > .05). The result of block 2 proved that there was no significant relationship between emotional awareness and the explicit achievement motive (AV), b = 0.080, SE = 0.055, β = -.112, p > .05, 95% CI_b[- 0.029, 0.188], F(2, 168) = 2.093, p > .05, R^2 = .013. The relationship between implicit and explicit achievement motive was still not significant.

Adding the interaction term in the third block to test the moderation hypothesis did not significantly change the variance explained (change in R² = .022, p > .05). The overall model for block 3 was not
significant, F(3, 167) = 1.990, p > .05, R^2 = .035. The result of moderation analysis showed that there was no significant moderation effect of Emotional Awareness on the relationship between implicit achievement motive on explicit achievement motive, b = - 0.059, SE = .031, β = -.149, p > .05, 95% CI_b[-0.120, 0.001]. Accordingly, H1e was rejected in favour of H0. There was also no significant main effect for Emotional Awareness, b = 0.095, SE = 0.055, β = .134, p > .05, 95% CI_b[-0.014, 0.204]. In addition, there was no significant main effect for Implicit Achievement Motive, b = 0.015, SE = 0.031, β = .037, p > .05, 95% CI_b[-0.046, 0.075].

For H1e, a post-hoc power analysis was conducted with G*Power *version 3.1.9.6* (Faul et al., 2009), as there was a small significant effect of f^2 = .04 (Cohen, 1988), which was just not significant at the 5% level of significance. The calculated test strength was .739 (73.9%). A test strength of 80% would have required 199 participants.

5.2.6. H1f: Self-regulation scale

The result of block 1 illustrated that there was no significant relationship between the implicit (UV) and explicit achievement motive (AV), b = 0.010, SE = 0.030, β = .026, p > .05, 95% CI_b[-0.049, 0.070], F(1, 170) = 0.118, p > .05, R² = .001. The
Adding the moderator *self-regulation* in the second block did not significantly change the variance explained (change in R^2 < .001, p > .05). The result of block 2 proved that there was no significant relationship between self-regulation and explicit achievement motive (AV), b = 0.010, SE = 0.040, β = *0.*019, p > .05, 95% CI_b[- 0.069, 0.089], F(2, 169) = 0.090, p > .05, R^2 = .002). The correlation between implicit and explicit achievement motive was still not significant.

Adding the interaction term in the third block to test the moderation hypothesis did not significantly change the variance explained (change in R^2 = .001, p > .05). The overall model for block 3 was not
significant, $F(3,168) = 0.110$, $p > .05$, $R^2 = 0.002$. The result of moderation analysis clarified that there was no significant moderation effect of self-regulation on the relationship between implicit achievement motive on explicit achievement motive, $b = -0.009$, $SE = .023$, β = -.031, $p > .05$, 95% CIb[-0.055, 0.037]. Therefore, the H1f
discarded in favour of H0. There was also no significant main effect for self-regulation, $b = 0.013$, $SE = 0.041$, $\beta = .024$, $p > .05$, 95% CIb[-0.068, 0.093]. In addition, there was no significant main effect for implicit achievement motive, $b = 0.012$, $SE = 0.031$, $\beta = .029$, $p > .05$, 95% CIb[-0.049, 0.072].

5.2.7. H1g: Listening-to-the-body scale

The result of block 1 showed that there was no significant relationship between the implicit (UV) and explicit achievement motive (AV), $b = 0.008$, $SE = 0.031$, $\beta = .021$, $p > .05$, 95% CIb[-0.052, 0.069], $F(1, 169) = 0.077$, $p > .05$, $R^2 < .001$. adding
The addition of the moderator Listening to the Body in the second block caused a significant change in the variance explained of 3.1% (change in $R^2 = .031$, $p < .05$). The result of block 2 proved that there is a significant relationship between listening on the fly and the explicit achievement motive (AV), $b = 0.098$, $SE = 0.043$, $\beta = .175$, $p < .05$, 95% CIb[0.014, 0.182], $F(2, 168)=2.684$, $p > .05$, $R^2 = .031$. The relationship between implicit and explicit achievement motive was still not significant.

Adding the interaction term in the third block to test the moderation hypothesis did not significantly change the variance explained (change in R^2 = .008, $p > .05$). The overall model did not become significant, $F(3,167)$
$=2.272$, $p > .05$, $R^2 = .039$. The result of moderation analysis showed that there was no significant moderation effect of listening to the body on the relationship between implicit achievement motive on explicit achievement motive, $b = -0.029$, $SE = 0.024$, $\beta = -.092$, $p > .05$, 95% CIb[-0.076, 0.019]. For these reasons, H1g was rejected in favour of H0. There was a significant main effect for on-the-body listening, $b = 0.103$, $SE = 0.043$, $\beta = .184$, $p<.05$, 95% CIb[-0.019, 0.188]. For the implicit achievement motive, no

significant main effect demonstrated, b = 0.011, SE = 0.031, β = .028, p > .05, 95% $_{CIb}$[-0.049, 0.071].

5.2.8. H1h: Trust scale

The result of block 1 proved that there was no significant relationship between the implicit (UV) and explicit achievement motive (AV), b = 0.010, SE = 0.030, β = .026, p > .05, 95% $_{CIb}$[-0.049, 0.070], F(1, 170) = 0.118, p > .05, R² = .001. Adding of the moderator trust in the second block did not cause a significant change in the variance explained (change in R^2= .011, p>.05). The result of block 2 showed that there was no significant relationship between trust and the explicit achievement motive (AV), b = 0.052, SE = 0.038, β = .103, p > .05, 95% $_{CIb}$[-0.024, 0.128], F(2, 169) = 0.971, p > .05, R^2 = .011) was present. The correlation between implicit and explicit achievement motives was still not significant.

Adding the interaction term in the third block to test the moderation hypothesis did not significantly change the variance explained (change in R² = .006, p > .05). The overall model was not significant, F(3, 168) = 0.993, p > .05 , R^2 = .017. The result of the moderation analysis illustrated that there was no significant moderation effect of trust on the relationship between implicit achievement motive on explicit achievement motive, b = -0.024, SE = .023, β = -.078, p > .05, 95% $_{CIb}$[-0.070, 0.022]. Accordingly, H1h was discarded in favour of H0. There was also no significant main effect for confidence, b = 0.055, SE = 0.038, β = .109, p > .05, 95% $_{CIb}$[-0.021, 0.131]. In addition, there was no significant main effect for implicit achievement motive, b = 0.011, SE = 0.030, β = .028, p > .05, 95% $_{CIb}$[-0.049, 0.071].

Since all sub-hypotheses tested in inferential statistics (H1a - H1h) could not be confirmed, H1 also had to be rejected.

5.3. Review of H2: Neuroticism

H2 was tested by a total of eight Pearson correlation analyses. For each of these, a correlation analysis was calculated for one scale of the *MAIA-2* (H2a-H2h). With regard to the prerequisite tests, it should be noted that the

relationship between neuroticism and emotional awareness (H2e) indicated a tendency towards a quadratic relationship (inverted u-shaped). To complement this, a curve fit was calculated for the comparison between linear and quadratic correlations. The result confirmed a better fit of a quadratic relationship to the data. Accordingly, the result of the H2e should be interpreted with caution (taking into account the quadratic correlation). All other correlations between neuroticism and the dimensions of interoceptive awareness (scales of the MAIA-2) were linear. Bootstrapping with the percentile method and 1000 bootstrapping draws were used to calculate the 95% confidence intervals for the Pearson correlation coefficient. The results of the correlation analyses to test the H2 for the individual scales of the MAIA-2 are summarised in Table 3. Since the postulated correlations were found for all scales of the MAIA-2 (except for the Noticing scale), the H2 was partially confirmed.

Table 3
Results of the correlation analyses of the H2

Hypothesis	*r*	Bootstrap 95% CI	Test decision
H2a Notice	-.119	[-.262, .039]	Rejected
H2b Non-Distracting	-.375***	[-.477, -.253]	accepted
H2c Don't worry about anything	-.363***	[-.494, -.216]	accepted
H2d Attention regulation	-.398***	[-.514, -.274]	accepted
H2e Emotional Awareness	-.162*	[-.322, .020]	accepted
H2f Self-regulation	-.449***	[-.569, -.306]	accepted
H2g Listening to the Body	-.316***	[-.452, -.160]	accepted
H2h Trust	-.605***	[-.693, -491]	accepted

Notes. N = 164.
* $p < .05$, ** $p < .01$, *** $p < .001$

The sample was too small to statistically validate the smallest significant (Cohen, 1988) correlations found (H2a and H2g) of $|r| = .119$, since the post-hoc test power calculated with G*Power *version 3.1.9.6* (Faul et al., 2009) was only .45 (45%) for a one-way correlation analysis. For a power of 80%, 435 test participants would be necessary.

5.4. Review of H3: Openness

In the same way as H2, H3 was tested by a total of eight Pearson correlation analyses. One correlation analysis was calculated for each scale of the *MAIA-2* (H3a-H3h). All prerequisites were checked and confirmed beforehand. Bootstrapping with the percentile method and 1000 bootstrapping draws were used to calculate the 95% confidence intervals for the Pearson correlation coefficient. Table 4 shows the results of the correlation analyses for testing H3 for the individual scales of the MAIA-2. Since the postulated correlations were only found for the MAIA-2 scales noticing (H1a), attention regulation (H3d) and listening (H3g), the H3 could only be partially confirmed.

Table 4
Results of the correlation analyses of the H3

Hypothesis	*r*	Bootstrap 95% CI	Test decision
H3a Notice	.169*	[.011, .330]	accepted
H3b Non-Distracting	.016	[-124, .166]	Rejected
H3c Don't worry about anything	.100	[-.075, .259]	Rejected
H3d Attention regulation	.210**	[.049, .360]	accepted
H3e Emotional Awareness	.096	[-.060, .268]	Rejected
H3f Self-regulation	.143	[-.025, .295]	Rejected
H3g Listening to the Body	.212**	[.075, .359]	accepted
H3h Trust	.039	[-.120, .195]	Rejected

Notes. N = 164.
* $p < .05$, ** $p < .01$, *** $p < .001$

The sample was too small to statistically validate the smallest significant (Cohen, 1988) correlations (H3c and H3e) of $r = .1$, as the post-hoc test power calculated with G*Power version 3.1.9.6 (Faul et al., 2009) for a one-way correlation analysis was only .356 (35.6%). For a power of 80%, 616 participants would have been necessary.

5.5. Verification of H4a and H4b: Abandonment probability

Two binary logistic regressions were calculated to test H4a and H4b. The corresponding prerequisites were checked beforehand and were fulfilled.

For H4a, there was a highly significant correlation between the implicit achievement motive and the probability of abandoning the online survey, b = -.61, SE = .19, Wald(1) = 10.28, p < .001, OR = 0.55, Cox&Snell R^2 = .065, Nagelkerkes R^2 = .152. The higher the participants' implicit achievement motive, the lower the probability of abandoning the online survey. Accordingly, H4a was assumed.

Testing H4b also revealed a highly significant relationship between explicit achievement motive and online survey dropout probability, b = -2.58, SE = .58, Wald(1) = 20.11, p < .001, OR = 0.08, Cox&Snell R² = .245, Nagelkerke's R^2 = .571. The higher the explicit achievement motive of the test participants was, the lower was the dropout probability of the online survey. According to this result, H4b was adopted.

The test strengths of H4a and H4b were calculated with G*Power *version 3.1.9.6, were* sufficiently high and were above 99.9 % (Faul et al., 2009).

6 Discussion

In the following section 6.1, the findings of the statistically tested sub-hypotheses of H1 are summarised and discussed. In interpreting the results of H1a, a reference is made to the findings of H2a. Section 6.2 continues by summarising and interpreting the results of the tested sub-hypotheses of H2.
Subsequently, in section 6.3, the findings of the statistically examined sub-hypotheses of H3 are summarised and explicated. Section 6.4 summarises and interprets the results of H4a and H4b, which were included as a supplement to this research. The final section 6.5 critically reflects on this research, identifies limitations and provides implications for practice and recommendations for future studies.

6.1. Summary and interpretation of H1

Overall, seven (H1b-H1h) of the eight sub-hypotheses of H1 had to be rejected because the expected moderation effects of the corresponding scales of the MAIA-2 were not significant. Only the moderation effect of H1a (Remark scale) was significant.

significant (see section 5.2). As noted in section 4.3.3, the Noticing scale was used to operationalise the subjective awareness of inner bodily sensations.

The results of H1a showed that with a low level of noticing, the relationship between implicit and explicit achievement motives was positive. The strength of this relationship decreased with a medium level of remarking, but remained positive. The graphical simple slope analysis made it clear that a sign change occurred with a high level of noticing, so that there was a negative relationship between implicit and explicit achievement motives (see Appendix G). However, for high and medium levels, the correlations between implicit and explicit achievement motives were very close to a zero correlation and were not significant.

On the content level, it becomes clear that a low level of noticing is associated with the congruence of the implicit and explicit achievement motives. A medium and high level of noticing has no significant influence on the connection between the implicit and explicit achievement motives. Accordingly, the present zero correlation of the examined sub-sample (see chapter 5) was not significantly influenced by higher proficiencies. Since there was no significant positive correlation between implicit and explicit achievement motive with higher levels of remarking, H1a was rejected. Overall, no sub-hypotheses of the H1 could confirm that the relationship between the implicit and explicit achievement motive was significantly more positive with a higher proficiency on the individual scales of the MAIA-2. Consequently, the H1 also had to be rejected (see section 5.2).

The derivation of H1 was based on the research findings of Thrash et al. (2007), who empirically proved that a high degree of private body consciousness, measured with the Private Body Consciousness Sub-Scale of the Body Consciousness Questionnaire by Miller et al. (1981), is positively related to achievement motivation congruence. Test participants who perceived their inner body sensations (private body consciousness) as pronounced showed increased achievement motive congruence (see section 2.2.2). As the H1 results from this research made clear, the findings of Thrash et al. (2007) could not be replicated with the scales of the MAIA-2 by Bornemann et al. (2015) and Eggart et al. (2021). In order to explain the possibly counterintuitive results from the present research work, the measurement instruments are first compared with each other.

contrasted to allow an accurate comparison of the constructs (private body consciousness vs. interoceptive consciousness).

When creating the Private Body Consciousness Sub-Scale, the intention of Miller et al. (1981) was to make the conscious perception of inner body sensations in non-affective states operationalisable. This enabled the researchers to map a stable personality trait. The five items capture the ability to consciously perceive bodily sensations such as tension, dry mouth or revenge, heartbeat, hunger contractions and changes in body temperature (Miller et al., 1981; Mehling et al., 2009). Thrash et al. (2007) were able to use this scale to neutrally record sensitivity to internal body states (Miller et al., 1981). In contrast to the study by Thrash et al. (2007), the conscious perceptions of inner bodily sensations including interacting emotional states of consciousness were operationalised within this research (see section 2.4). The items of the Noticing scale of the MAIA-2, in contrast to the Private Body Consciousness Sub-Scale, do not operationalise neutral body sensations exclusively, but also measure conscious perceptions of unpleasant (item no. 2: "I notice when I do not feel comfortable in my body.") and pleasant (item no. 3. "I notice where in my body I feel comfortable.") body sensations (Mehling et al., 2018).

As highlighted in section 2.4, Bornemann et al. (2015) confirmed that the Private Body Consciousness subscale correlates most positively with the MAIA scales Noticing and Emotional Awareness. The findings of this research showed that the moderation effect of the Noticing scale of the MAIA-2 (H1a) became significant at the 5% level. In addition, the moderation effect of the Emotional Awareness scale (H1e) showed a tendency towards significance ($p < .10$). The interpretation of the graphical Simple Slope Analysis (see Appendix H) corresponds to the interpretation of H1a. These scale overlaps are presumably due to the correlating trait component, which refers to the conscious perception of inner bodily sensations, independent of affective states. Within motivation research, the search is on for personal factors (traits) and possibilities for change (states) that can explain and influence a frequently existing zero correlation of the implicit and explicit motivational system (see section 2.2.2). The state-trait moderators (scales of the MAIA- 2), which are used in this research work to explain the correlation between the implicit and

explicit achievement motive are therefore not comparable with the moderator of private body awareness from the study by Thrash et al. (2007).

The components of interoception are defined by different terms (see section 2.3), which are often not uniform. Conceptual differences also exist with regard to various sub-components of interoception (Mehling et al. 2012). In this context, terms are often used synonymously, although they target different aspects (Ceunen et al., 2016; Garfinkel & Critchley, 2013; Herbert & Pollatos, 2008). This results in ongoing definitional conflicts and problems of taxanomising different interoceptive perceptual processes. A multitude of terminologies for interoceptive processes complicates the comparability and interpretation of findings (Ceunen et al., 2016; Garfinkel et al., 2015; Khalsa et al., 2017). In the current research literature, two fundamentally different currents crystallise regarding the understanding and consequently the operationalisation of interoceptive awareness. One is the conception of interoceptive awareness according to Garfinkel et al. (2015) and the other is the view according to Mehling et al. (2012). As noted in section 2.3, the latter is based on the multidimensional understanding of interoception (see section 2.3).
Accordingly, the (multidimensional) construct of interoceptive awareness used cannot be classified as a (one-dimensional) dimension of interoception (Mehling et al., 2012).

Garfinkel et al. (2015) proposed the following dimensions of interoception:
(1) *Interoceptive accuracy/sensitivity* (individual performance on objective behavioural tests of perception of internal body signals, such as heartbeat detection),
(2) *Interoceptive sensitivity* (self-rated assessment of subjective perception of bodily internal signals, measured by interviews/questionnaires) and (3) *Interoceptive awareness* (metacognitive perception of interoceptive accuracy, such as the confidence-accuracy correspondence). Building on Garfinkel et al. (2015), Mulcahy et al. (2019) explain interoceptive awareness as the overruling of (explicit) beliefs about one's own interoceptive abilities (i.e., subjective confidence in one's perception of interoceptive processes) with objective interoceptive accuracy. With regard to the description of interoceptive awareness, Mehling (2016) emphasises, in contrast to Garfinkel et al. (2015), that metacognitive awareness is based on the fact that

a conscious cognition associated with negative feelings is conceived as a mental event (integration of mindfulness; see section 2.3) rather than the self or error consciousness (identification vs. non-identification; see section 2.3). Following the proposed dimensions of Garfinkel et al. (2015), the MAIA-2 thus operationalises interoceptive sensitivity (2) on a multidimensional level. By differentiating interoceptive sensitivity according to attentional style and regulatory aspects, a distinction is made between the poles of fear-driven and mindfulness-based interoception (Mehling, 2016). Mehling et al. (2012) also refer to this multidimensional construct as the interoceptive awareness. It seems reasonable that the contrasting definitions of interoceptive awareness could provide an explanation for the H1 findings. As described in section 2.4, it has been conjectured that individuals with high interoceptive awareness are congruent in their implicit and explicit achievement motives because they orient their explicit motives to deep-seated affect-based needs (implicit motives). It is suggested that high levels of interoceptive awareness according to Grafinkel et al. (2015) may be associated with achievement motive congruence. Since interoceptive accuracy/sensitivity is associated with better emotion regulation (Damasio, 1994; Herbert & Pollatos, 2008), this objective component of interoception could possibly also be positively related to achievement motive congruence.

The operationalised self-reported aspects of interoception through private body awareness only reflect a specific aspect of the conscious perception of inner body sensations or interoceptive perception processes. Interoceptive sensitivity or body consciousness, as explicit beliefs about interoceptive perceptual processes (Mehling, 2016), was defined and operationalised differently in the study by Thrash et al. (2007). In contrast to the Private Body Consciousness Sub-Scale, the MAIA-2 operationalises multidimensional aspects of conscious interoceptive perception, distinguishing between adaptive and maladaptive aspects of perception (Mehling et al., 2012; Mehling, 2016). Directly directing attention to immediately experienced feelings seems to be more adaptive, whereas a rather rigid and ruminative self-focus seems to be more maladaptive (Mehling et al., 2012; Watkins & Moulds, 2005). Mehling et al. (2012) explain that interoceptive consciousness is a product of conscious perception and therefore

is influenced by multidimensional interoceptive perceptual processes (including attribution processes; see section 2.3). Going further, Bornemann et al. (2015) concretise that the scales of the MAIA (except for the Noticing scale) represent self-regulatory aspects of the conscious perception of inner bodily sensations, which is consistent with the results of the H1 as a whole. As described in section 2.2.2, Thrash et al. (2007) also tested for a moderating effect of private self-consciousness within their study using Fenigstein et al.'s (1975) Self Consciousness Scale. The researchers used this to measure whether the tendency to focus on one's own thoughts and feelings also predicts motive congruence. However, a moderating effect was not confirmed (see section 2.2.2), which is in line with the H1b-H1h findings from the present research. It is suspected that the corresponding scales of the MAIA-2, which according to Bornemann et al. (2015) represent self-regulatory aspects of the conscious perception of inner bodily sensations, similar to the Self Consciousness Scale (Thrash et al, 2007), also drew more attention to the self-concept (explicit achievement motive) and less to the implicit achievement motive. This might not have significantly influenced the relationship between the implicit and explicit achievement motives.

As the results of H1a showed, only a low score on the Noticing scale was associated with achievement motive congruence (see Appendix G). This is justified by concluding that the conscious perception of physical sensations was influenced by the individual emotional states of consciousness of the test participants. Empirical evidence suggests that individuals who are highly aware of their internal bodily sensations (for example, the accuracy of the heartbeat) are likely to have higher levels of anxiety (Mor & Winquist, 2002; Domschke et al., 2010). The significant main effect of the Noticing scale on the explicit achievement motive (AV) suggests that the H1a scores are more strongly related to the interacting cognitive evaluations of bodily sensations and do not represent the objective aspect of interoception. A high degree of noticing could therefore be adaptive or maladaptive (i.e. have a beneficial or non-beneficial effect on the connection between performance motives), whereby it depends on the individual evaluation and regulation of the perceived bodily sensations. According to this, the findings of H1a could be dependent on

the regulatory abilities of the occasional sample studied, which did not consist exclusively of action-oriented individuals (Baumann et al.; 2005) and trained meditation practitioners (see section 4.4). Mehling et al. (2012) describe that through different types of attention to body sensations, conflicting views of body awareness can be understood. Whether body awareness is adaptive or maladaptive may depend on differential and incompatible states of mind (Watkins & Teasdale, 2004; Barnard & Teasdale, 1991; Teasdale, 1999), which are associated with brain functions that are habitually integrated but may become uncoupled after, for example, a few weeks of meditation (Farb et al., 2007). It is suggested that in a specific sample (for example, experienced long-term meditators of mindfulness meditation), the interoceptive embodiments of the implicit achievement motive are not dominated by the (negative) evaluations by the self-concept. Thus, a high expression of the scales of the MAIA-2 could possibly be associated with achievement motive congruence, as meditation-experienced individuals may have their self-concept
(mindful, neutral or non-judgemental) could adapt to the embodiments of the implicit motive. Exploratively, meditation experience was added as a covariate to the original moderation analysis of H1a in another model, and the result showed that the interaction effect between noticing and implicit achievement motive was no longer significant (see Appendix I).

As mentioned in section 2.3, the Somatic Marker Hypothesis by Damasio et al. (1991) has taken up the content of the James-Lange theory (1884). This clarified that specific brain structures are responsible for the integration of visceral feedback and subjective feeling. Interoceptive sensitivity influences the intensity of felt emotions and the way individuals cope with emotional and physical stress (Herbert & Pollatos, 2008). Thrash et al. (2007) interpreted from their findings that the implicit achievement motive might be indirectly accessible through conscious interoceptive awareness. It was hypothesised that the bodily effects of the implicit achievement motive could become conscious through bodily attentional orientations (see section 2.2.2). Similar to Trash et al. (2007), Bielefeld (1986) also describes that conscious interoceptive awareness is not limited to the receptors of the internal and external body environment, but is inseparable from an individual's emotional experience. Thus Damasio explains

et al. (1991) that individual emotional experiences are embodied. As described in section 2.3 illustrates, emotions are described as accompanying internal body sensations (Herbert & Pollatos, 2008). The traditional body awareness construct was previously frequently used in studies with anxiety and panic patients to describe a cognitive attitude of the patient characterised by an exaggerated focus on physical symptoms, rumination and catastrophic consequences. Therefore, within medical and behavioural science, heightened awareness of somatic information has been considered potentially distressing and maladaptive (see section 2.2). One-dimensional measures of body awareness have been used in a variety of patients (for example, with chronic pain) (Mehling et al., 2009) to show the effects of conscious awareness of internal body sensations on pain. The result of H1a from the present research illustrates this, as only a low score on the Noticing scale was associated with achievement motive congruence. The ability to regulate one's own attention in certain ways is considered a key characteristic for increasing body awareness (Mehling et al., 2012). Thus, findings from pain research suggest that body awareness is a complex, multidimensional construct that requires more sophisticated conceptualisation (Mehling et al., 2009). It has been proposed that the fundamental experience and awareness of the self follow dynamic central representations of physiological state driven by afferent visceral signals (Damasio, 1994; Damasio, 1999). Bodily arousal states can trigger and intensify the experience of an emotion, the quality of which is determined by the cognitive evaluation of the probable cause of the arousal (Schachter & Singer, 1962). The conscious perception of internal bodily sensations could be understood as a prerequisite for the correct attribution of these interoceptive perceptual processes, which could be crucial for motive congruence. If all individuals were sensitive to their interoceptive perceptions and could also regulate and integrate them very well at the same time, there might be less motive incongruence. Thus, low body awareness and motive incongruence are probably symptoms of low self-access. According to Kuhl's (2001) theory of personality-system interactions (PSI theory), unpleasant sensations can increase motive congruence.

reduce when the self-regulation of affects (situation orientation) is impaired (Baumann et al., 2015).

Mehling et al. (2009) describe that items dealing with illness or pain were not included in the Private Body Consciousness Sub-Scale to avoid overlap with anxiety and hypochondria. According to Cioffi (1991), the number of potentially distressing body sensations can be a marker for hypochondria and anxiety. Hypochondria is coded in the International Statistical Classification of Diseases and Related Health Problems (*ICD-11*) under *obsessive-compulsive disorder and related disorders* (Chapter *6B2*). Fear of illness (illness anxiety) is prioritised as a descriptive feature (World Health Organisation, 2019). Anxiety is defined as "an affective state of the organism characterised by increased activity of the autonomic nervous system as well as self-perception of arousal, the feeling of being tense, an experience of being threatened and increased apprehension" (Stöber & Schwarzer, 2000, p. 189). Zinbarg et al. (2016) have shown that anxiety (state) is predicted by neuroticism (trait). Further, a reference to the empirical findings of Pearson and Pfeifer (2020) could be interesting and informative. Within their study, the researchers have shown that the items of the MAIA that relate more to pleasant aspects of interoceptive awareness are associated with higher emotional stability and lower neuroticism expression. In addition, researchers have clarified that the Noticing scale is significantly positively related to neuroticism (see section 2.4), although this could not be replicated within the present research (results of H2a, see section 5.3.1). It is suspected that the emotional state of consciousness of the test participants (depending on the individual attribution and regulation of bodily sensations) could have influenced the results of H1a and H2b, which is why the findings of Thrash et al. (2007) and Pearson & Pfeifer (2020) could not be replicated. Accordingly, the use of the Noticing scale, as a moderator for the relationship between implicit and explicit achievement motives, could have led to a confound with neuroticism. According to Winter et al.'s (1998) channelling hypothesis, neuroticism stands in the way of any motive satisfaction. An exploratory analysis showed that when neuroticism was controlled for, the interaction effect between noticing and implicit achievement motive was no longer significant (see Appendix I). Thus, if from the

scale, the neuroticism component was partialised out, noticing no longer had a moderating influence on the relationship between implicit and explicit achievement motives.

The results and conclusions of Thrash et al. (2007) are extended according to the findings of this research. Performance motive congruence could be positively influenced by conscious interoceptive perception (Thrash et al., 2007).
However, interacting affective and cognitive conscious processes of interoceptive perception could predict the relationship between the implicit and explicit performance motive in different directions (congruence or incongruence). In line with the interpretations of Thrash et al. (2007), it is assumed that conscious interoceptive perception could transfer the effects of the implicit motive to higher levels of consciousness (see section 2.2.2). Conscious interoceptive awareness may be associated with pleasant sensations, but it could also be associated with unpleasant sensations such as pain (Mehling et al., 2012). It is interpreted that body awareness, as the evaluation of interoceptive perception (interoceptive sensitivity), is associated with congruence when there is appropriate self-regulation and metacognitively negative sensations are recognised as error awareness rather than the self.

As shown in Appendix I, the MAIA-2 scales were exploratively aggregated into a total score without remark. This aggregation seemed plausible because the scale intercorrelations were empirically sufficiently high. As an explorative moderated moderation could show, the moderating effect of noticing (H1a) tended to be positively influenced by a high expression on the MAIA-2 scales without noticing. With a high expression of noticing and an increasing expression of MAIA-2 without noticing, the negative correlation (incongruence) between implicit and explicit achievement motive tended to be positively influenced and tended towards a zero correlation (see Appendix I). Although this relationship should not be interpreted causally, it is suggested that interoceptive awareness may promote achievement motive congruence. However, due to the design of the present research, only cross-sectional correlations can be interpreted (achievement motive incongruence weakens) and no causal conclusions can be drawn. With higher interoceptive awareness, the correlation between implicit and

explicit achievement motive become significantly more positive (H1), which can only be verified by longitudinal study designs. Future studies could also look at the individual dimensions of interoceptive awareness (MAIA-2 scales) separately in order to be able to make differentiated statements.

6.2. Summary and interpretation of H2

The results of the H2 proved that out of a total of eight sub-hypotheses, seven sub-hypotheses could be confirmed. The scales of the MAIA-2 Non-distraction (H2b), Not worrying (H2c), Attention regulation (H2d), Emotional awareness (H2e), Self-regulation (H2f), Listening to the mind (H2g) and Trust (H2h) each showed a significant negative relationship with neuroticism. The strongest negative correlation was found between neuroticism and trust (H2h). Unexpectedly, a small negative correlation was also found between neuroticism and the Noticing scale (H2a), but this did not become significant and may be due to a chance finding. Overall, the results of the H2 demonstrate that neuroticism is significantly negatively related to interoceptive awareness (except for the Noticing scale, for which no significant relationship was found). Based on these results, the H2 was partially confirmed (see section 5.3).

As explained in section 2.1.3, the Big Five personality trait neuroticism represents a dispositional predisposition for increased emotional lability. As a result, individuals with a high level of neuroticism tend to experience suffering quickly and intensely. Due to the negative emotions, they act accordingly insecurely and cautiously in many situations (Watson & Clark, 1997; Watson & Tellegen, 1985; Watson et al., 1999). That the dispositional personality trait neuroticism is significantly negatively related to most dimensions of interoceptive awareness (except noticing) has been suggested by the research findings presented in section 2.4. Although neuroticism was operationalised differently in each of the studies by Ferentzi et al. (2021), Mallorquí-Bagué et al. (2014) and Pearson and Pfeifer (2020) (see section 2.4), the respective conceptualisations were judged to be comparable to the Big Five personality trait neuroticism within this research.

Pearson and Pfeifer (2020) empirically clarified the above-mentioned descriptive characteristics of neuroticism on the basis of the MAIA self-assessment. The researchers proved that a high score on the trust scale turned out to be the best predictor of a low neuroticism score. Neuroticism was operationalised with the Eysenck Personality Inventory (Eysenck & Eysenck, 1964) (see section 2.1.3). The result of the H2h from the present research was able to confirm this correlation in that a high level of neuroticism was proven to be the best predictor of a low level on the trust scale. According to Mehling et al. (2012), the trust scale is positively related to the use of bodily sensations within decision-making, which refers to the descriptive characteristics of neuroticism already explained.

Furthermore, Pearson and Pfeifer (2020) have empirically confirmed that the Noticing scale is significantly positively related to neuroticism. This finding contrasts with the findings of other scales that highlighted the presented research findings on neuroticism as a whole (see section 2.4). The researchers explained this relationship by increased autonomic reactivity in neurotic individuals, as it is reasoned that neuroticism increases sensitivity to bodily sensations (see section 2.4), which may have influenced interoceptive sensitivity in their research. Psychophysiological findings illustrate the influence of neuroticism on interoceptive sensitivity: for example, Norris et al. (2007) used Goldberg's (1992) Big Five personality dimension scale and found that neuroticism implied an enhanced skin conductance reactivity response from aversive visual stimuli. Similarly, Reynaud et al. (2012) reported that neuroticistic experimental participants, as measured by Costa & McGrae's (1992) NEO-PI-R scale, exemplify an enhanced skin conductance response to anxiety-provoking film stimuli. In this context, an increased skin conductance response is associated with increased reactivity of visceral brain regions (Horing & Büchel, 2022; Greening et al., 2022; Baltazar et al., 2021). The result from the present research (H2a) failed to show, as Pearson & Pfeifer (2020) did, that the Noticing scale was significantly positively related to neuroticism. When checking the H2a, it turned out that the negative relationship between neuroticism and the Noticing scale did not become significant. The finding of the H2a

differs from the other results (H2b-H2h), where significant negative correlations have been empirically demonstrated. As already highlighted in section 6.1, the Noticing scale measures the sensitivity of inner bodily sensations and thus, according to Garfinkel et al. (2015), the subjective component of interoception, which could have influenced the results of H2a. Thus, despite a high level of neuroticism, some test participants could have subjectively perceived, interpreted, evaluated and/or regulated the associated stronger physiological arousal differently (interoceptive sensitivity).

Although no significant correlations between neuroticism and the MAIA- 2 scales Non-Distraction and Emotional Awareness have been proven by previous study results, significant negative correlations with neuroticism were confirmed within this research. The Non-Distraction scale (H2b) operationalises the ability to consciously pay attention to negative sensations such as physical pain (see section 2.3). Neuroticistic individuals with a corresponding regulatory strategy might be more likely to distract themselves from unpleasant sensations due to increased anxiety and thus not be mindful of unpleasant sensations or not consciously allow them. According to Zinbarg et al. (2016), anxiety (state) is predicted by neuroticism (trait). In addition to emotional instability, neuroticism is also associated with excessive sensitivity and susceptibility to stress (section 2.1.3). Distraction mechanisms could be a compensatory attempt for such individuals to suppress unpleasant feelings. Empirical research findings draw attention to the fact that consciously allowing unpleasant feelings supports emotion regulation (Alberts et al., 2012; Kober et al. 2019; Webb et al., 2012). Overall, it should be noted that the MAIA-2, including the Non-Distraction scale, is based on subjective self-assessment. For this reason, the corresponding items could also be interpreted biased from actual distraction behaviour, which was not tested within the research. Accordingly, good self-reflection is generally required for valid results of the MAIA-2.

The scale Emotional Awareness of the MAIA-2 operationalises the conscious perception of a psychosomatic interaction process (see section 2.3). With the corresponding result of the H2e, it was confirmed that Emotional Awareness is also

significantly negatively correlated with neuroticism, which complements the study findings from section 2.4. Mallorquí-Bagué et al. (2014) have empirically demonstrated that anxiety is associated with increased physiological reactivity and interoceptive sensitivity to changes in internal bodily arousal. The increased sensitivity due to anxiety could block or negatively influence access to higher levels of consciousness, which could also include the conscious perception of a psychosomatic interaction process (emotional awareness). Accordingly, the connection between bodily sensations and emotions could no longer have been consciously perceived.

As can be seen in section 5.3, the prerequisite tests of the H2e showed a tendency towards a quadratic relationship (inverted u-shaped) between neuroticism and the Emotional Awareness scale. For this reason, a curve fit was calculated for the comparison between linear and quadratic correlations. The result confirmed a better fit of a quadratic relationship to the data. Accordingly, the result of the H2e should be interpreted with caution (taking into account the quadratic relationship) (see section 5.3). Participants with very low and very high levels of neuroticism showed lower emotional awareness than participants with medium levels of neuroticism who showed high emotional awareness. It is concluded that individuals who are insensitive to their emotions (low neuroticism) are also unaware of the connection between bodily sensations and emotions (low emotional awareness). Individuals who are extremely sensitive to their own emotions (high neuroticism) may be overridden by their own emotions or fear (Zinbarg et al., 2016). Consciously allowing and perceiving emotions is crucial for consciously perceiving interoceptive perceptual processes (Alberts et al., 2012; Kober et al. 2019; Webb et al., 2012).

6.3. Summary and interpretation of H3

The results of the H3 showed that of a total of eight sub-hypotheses, only three could be confirmed. The scales of the MAIA-2 Noticing (H3a), Attention Regulation (H3d) and Listening to the Body (H3g) demonstrated a

significant positive correlation with openness. It should be noted that these linear correlations according to Cohen (1988) were all only slightly pronounced. The most striking correlation was between openness and listening to others (H3g) and was highly significant. The scales non-distraction (H3b), not worrying (H3c) and self-regulation (H3f) also showed a low positive correlation with openness. However, these correlations were not significant. Likewise, the scales Emotional Awareness (H3e) and Confidence (H3h) showed a positive relationship with openness, which according to Cohen (1988) was well below a small effect and did not become significant. Accordingly, these five sub-hypotheses (H3b, H3c, H3e, H3f and H3h) had to be rejected in favour of the corresponding H0. Overall, based on these results, H3 could only be partially confirmed (see section 5.4).

The research findings presented (see section 2.4) by Ferentzi et al. (2021) and Vachon-Presseau et al. (2018) suggested that the dispositional personality trait Openness could be significantly positively related to most dimensions of interoceptive awareness (except Non-Distraction). Only the Non-distracting scale of the MAIA, illustrated a significant negative relationship with Openness in the study by Vachon-Presseau et al. (2018). The finding (H3b) from the present research could not confirm this result. It is suspected that the significant negative association in the study by Vachon-Presseau et al. (2018) was strongly influenced by the sample studied (pain patients) and that this result could not be replicated due to the non-clinical sample (see section 4.4). Accordingly, (overt) individuals could be distracted solely by bodily sensations when experiencing pain. Mehling et al. (2009) also draw attention to such peculiarities regarding findings in pain research.

Although there are no study findings showing a significant correlation of openness with the scale Don't worry, a positive correlation was also suspected for these dimensions of interoceptive awareness, which could not be confirmed with the examination of the H3c (see section 5.4.3). As already highlighted in section 2.3, the dimension of not worrying refers to the tendency to remain emotionally stable despite unpleasant sensations and not to worry because of pain. According to the descriptive characteristics of openness (cf.

Section 2.1.3), open individuals are characterised by a pronounced inner flexibility, which, according to McCrae & Costa (1997), is also associated with a special curiosity and an increased interest in experiences. It was suspected that this open attitude could also refer to inner (emotionally coloured) states. The results of H3c make it clear that this open attitude, which is associated with a high expression of the personality trait openness, cannot be equated with the open attitude associated with mindfulness (open awareness; see section 2.3). Rather, the expressions on the scales of the MAIA-2 (apart from noticing) depend on individual self-regulatory aspects of the conscious perception of inner bodily sensations (Bornemann et al., 2015), which apparently do not always have to be directly positively related to openness.

6.4. Summary and interpretation of H4

The supplementary results of H4a and H4b were able to prove that the implicit as well as the explicit achievement motive of the test participants had a highly significant correlation with the probability of dropping out of the online survey. The higher the implicit achievement motive, the lower the probability of abandoning the online survey. The higher the explicit achievement motive was, the lower was the dropout probability of the online survey. Thus, H4a and H4b could be accepted (see section 5.5).

The empirical findings of H4a and H4b support the theoretical assumptions outlined in section 2.2. The validation of the TAT also showed that the implicit achievement motive predicts performance behaviour. Individuals with a high implicit achievement motive performed better in experimental tasks than individuals with a weak achievement motive. The reason for this finding was that individuals with a high implicit achievement motive enjoyed the challenge more, were more absorbed in the task and experienced more satisfaction even with partial success. This promoted persistence and motivated more disciplined work (Brandstätter et al., 2018). This finding is consistent with the finding from this research. As noted in section 2.2, it was assumed that participation in the online survey required performance behaviours from the experimental participants.

Moreover, the correlation between the explicit achievement motive and the dropout probability was more pronounced within this research than the correlation between the implicit achievement motive and the dropout probability. As described in section 2.2.2, implicit motives energise a behavioural performance and explicit motives guide the concrete behaviour and thus decide whether an action is actually performed consciously or not (McClelland et al. 1989). This could explain why the explicit achievement motive showed a stronger correlation than the implicit achievement motive. More self-control is required to implement performance goals based solely on a motivational self-image (Brandstätter et al. 2018), which is not always adequately implementable for all individuals (Brunstein, 2018). If an individual's implicit and explicit achievement motives are high, it is expected that the dropout probability will be even lower than if the motives do not go hand in hand (Schüler, 2010). If the achievement motives are not concurrent, an individual may have set a goal (explicit achievement motive) that has not been energised by an equivalent implicit achievement motive. For example, a participant's explicit goal might have been to complete the survey, but only a weak implicit achievement motive was present.
Accordingly, the test participant might have noticed over time that his affective needs were not being satisfied and the survey was discontinued. These aspects could be taken up and examined in more detail in future empirical studies. Further implications are taken up in the following section 6.5.

As highlighted in Chapter 5, a small significant positive correlation was found between implicit and explicit achievement motive in the total sample (dropouts and non-dropouts). However, after dropouts were excluded for the analyses of H1, H2 and H3, there was no longer a correlation (zero correlation). A possible explanation for this difference is that the dropouts could have been very congruent in their achievement motives in the way that the implicit and explicit achievement motive were each low.

6.5. Critical reflection, implications and research outlook

The comprehensive results of the present research work illustrate the possibility of combining the complementary research fields of motivation & consciousness research in the most economical way possible. Overall, this research has enabled more transparency into complex empirical topics (such as interoception) and established further corresponding content in the process. For example, the dispositional personality traits neuroticism and openness, as well as the self-assessed meditation experience of the test participants, were also included in the consideration of the research questions (partly on an explorative level through additional analyses; see Appendix I). In addition, this research work (master's thesis) had the opportunity to build thematically on the previously completed bachelor's thesis (Nuyken, 2019) by empirically investigating interoceptive awareness. For this purpose, the MAIA-2 by Bornemann et al. (2015) and Eggart et al. (2021) was used, which represents a revised version of the MAIA by Mehling et al. (2012). The MAIA-2 is currently being validated using a non-clinical sample, whereby the statistical data from the present research work will also be included in the validation study.

Despite the relatively time-consuming implementation and evaluation of the PSE by Schultheiss and Pang (2007), it was also used within the research work to operationalise the implicit achievement motive of the test participants. The PSE is often criticised, especially because of the high time expenditure. In addition to economic disadvantages, the test quality criteria are also frequently questioned, especially by representatives of classical test theory. Thus, the comparatively low objectivity, reliability and validity are contrasted with test quality criteria of explicit motive measurement instruments (Brunstein & Heckhausen, 2018; Schultheiss et al., 2008). However, extensive discussions of different methods of motive measurement (Entwisle, 1972; McClelland, 1980) have disregarded the fact that projective scores of implicit motives and questionnaire scores of explicit motives for *motives of the* same name have little shared variance. Ultimately, the PSE represents a modernised variant of the TAT and cannot be replaced by an explicit measure (Brunstein & Heckhausen, 2018).

As motive congruence has many health benefits (Brunstein et al., 1998, Schultheiss et. al., 2008), for practice in general a mindful attitude towards

pleasant, neutral and unpleasant bodily sensations, which includes the non-valuing of arising sensations and feelings. In addition, Mehling et al. (2009) recommend optimising the attentional focus on inner bodily sensations for better therapeutic success for patients with anxiety disorders and post-traumatic stress disorders. Healthy individuals, especially those with a higher degree of neuroticism, are also recommended to focus attention on inner body sensations. At this point it is again emphasised that neuroticism as a dispositional personality trait should not be misunderstood in the sense of a psychiatric classification (Borkenau & Ostendorf, 1993). In order to improve one's own emotion regulation, unpleasant feelings (such as anxiety) should also be consciously allowed and not suppressed (Kober et al. 2019; Webb et al., 2012). In line with the H2h findings from this research, it is particularly advised to promote trust in bodily sensations (for example, through intervention strategies).

Future studies could complement the cross-sectional findings of this research and investigate the influence of interoceptive awareness on the relationship between implicit and explicit achievement motives in a longitudinal design. In general, no causal conclusions can be drawn from the cross-sectional findings of this research. In this context, it could be examined in a longitudinal design whether the relationship between implicit and explicit motives can be positively influenced by a mindfulness-based intervention (to increase interoceptive awareness; Nuyken, 2019). It should be noted that mindfulness-based interventions are unlikely to work equally well for all individuals (Baumann et al., 2005).

Since only a few empirical studies have been published on the direct change of motive incongruence (Brandstätter et al., 2018), supplementary findings are particularly desired in this regard. According to assumptions of motivation research, incongruence can be overcome by regenerating explicit goals on the basis of implicit motives (Brandstätter et al., 2018). As already discussed in section 2.2.2, McClelland et al. (1989) explain the existence of motive incongruence, among other things, by the fact that implicit motives are not consciously perceived in most cases and therefore cannot serve as information for explicit goals. Empirical

However, findings could prove that a conscious access to implicit motives can be promoted by visual interventions. For example, it has been empirically clarified that imagining goals (Schultheiss & Brunstein, 1999) and fantasising about motive-specific affective stimuli has a congruence-promoting mediating function (Job & Brandstätter, 2009). According to McClelland et al. (1989), a second cause of motive incongruence and its consequences is overadaptation to environmental influences such as social norms and the accompanying neglect of internal sources of information (see section 2.2.2). Evidence exists that emotional coping strategies, such as reporting emotional experiences, can mitigate negative consequences of motive incongruence (Schüler et al., 2019). In this context, interoceptive awareness and other components of interoception (Garfinkel et al., 2005) should also be empirically examined.

In addition to neuroticism and openness, other personality traits (for example, conscientiousness) could also be empirically examined in connection with interoceptive awareness. For small correlations, the findings of H2 and H3 should be replicated with a larger sample. Further research is also considered useful to exclude possible chance findings.

In addition, follow-up studies could go into motivational behavioural aspects in more detail than was possible within this research work, due to the additionally included findings of H4a and H4b. According to Winter (1996), other motivational themes, such as the power or connection motive, could also come into conflict (collide) with the achievement motive, which could possibly have led to a high dropout probability. For an economic implementation, only the expression of the implicit and explicit achievement motive of the test participants was examined within this research work, whereby these were related to the dropout probability of the online survey. As mentioned in section 6.4, the interaction between implicit and explicit achievement motives could also have influenced the dropout probability, which was not specifically investigated within this research. In addition, possible influences of personality traits (for example, conscientiousness) were not considered when examining dropout probability. As noted in section 2.1.3, certain combinations of personality traits can influence the likelihood of dropout.

satisfaction of motives (Brunstein, 2018; Winter et al., 1998). At this point, it is emphasised that the achievement motive should not be confused with the dispositional personality trait conscientiousness. Borkenau and Ostendorf (1993) describe conscientious individuals as goal-oriented, ambitious, persistent and orderly. Such individuals display a high sense of entitlement and may exhibit obsessive-compulsive structures. In this form, conscientiousness represents a form of self-control (see section 2.1.3). In contrast to dispositional personality traits, however, motives are linked to a concrete behaviour and are dependent on the current degree of saturation of the motive and situational incentives. Personality traits, on the other hand, describe the consistency of externally visible behaviour (Scheffer & Heckhausen, 2018). Ultimately, these complementary constructs of personality are based on a different operationalisation (see section 2.1.3 & section 2.2.1).

7 Conclusion

The present research has added new empirical findings to motivation and awareness research. For example, the results of the H1 showed that only a low score on the Noticing scale of the MAIA-2 is associated with achievement motivation congruence. This scale operationalised the conscious perception of physical sensations, including associated emotional states. Interoceptive sensitivity, which follows conscious sensing of the body (interoceptive sensitivity), can be adaptive or maladaptive (Mehling et al., 2012; Mehling, 2016). Directly directing attention to immediately experienced feelings seems to be adaptive, whereas a ruminative self-focus seems to be maladaptive (Mehling et al., 2012; Watkins & Moulds, 2005). Accordingly, whether interoceptive sensitivity has a positive effect on congruence might depend on attentional regulation, whereby metacognitively negative sensations should be recognised as error awareness rather than the self. Adaptive body awareness (interoceptive awareness) has been accentuated as beneficial with regard to many health aspects (Mehling et al., 2012; Bornemann et al., 2015) and could potentially promote motive congruence.

The findings of the H2 have shown that neuroticism is significantly negatively related to all scales of the MAIA-2 (except noticing). The strongest negative

A correlation was found between neuroticism and the trust scale (H2h), which is in line with the empirical findings of Pearson & Pfeifer (2020). Experiencing one's own body as safe and trusting has been linked to the use of body sensations within decision-making (Mehling et al., 2012).

The results of H3 have shown that openness is only significantly positively related to the scales noticing, attention regulation and listening to the body. Overall, it is questioned whether openness is indeed a valid predictor of an open attitude in the context of mindfulness (open awareness) and can therefore be related to interoceptive awareness.

The complementary findings of H4a and H4b have shown that a high expression of the implicit and explicit achievement motive serves to predict achievement behaviour, which is consistent with theoretical assumptions and complements empirical findings (Brandstätter et al., 2018; McClelland et al. 1989; Schüler 2010). Overall, the comprehensive results of this research form a good foundation for further empirical research on motivation and consciousness.

In particular, it became clear within this research that the heterogeneity of the construct of consciousness encompasses various multi-layered mental components (Kiefer, 2016). As Shakespeare (1564-1616) said, nothing in itself is either good or bad, it is thinking that makes it so. This indirect appeal could also be applied to interoceptive consciousness and ultimately access to our self.

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Appendix

Appendix A: Interview protocol

Prof. Dr. Becker. 21.02.2022. Written interview with Jana Nuyken. Prof. Dr. Kurt Becker (kurt.becker@apollon-hochschule.de). Vice President of Research at APOLLON Hochschule der Gesundheitswirtschaft GmbH, Head of the Medical and Health Technology Management course; Universitätsallee 18, 28359 Bremen.

N. J.: "I would like to start my paper with an appropriate quote from you. Vedic philosophy teaches about the unity of the individual self (आ(न्, ātman) with the universe, or the ultimate reality (त+ tattva), on which being in the here and now is based. What do you understand by "So Ham? "

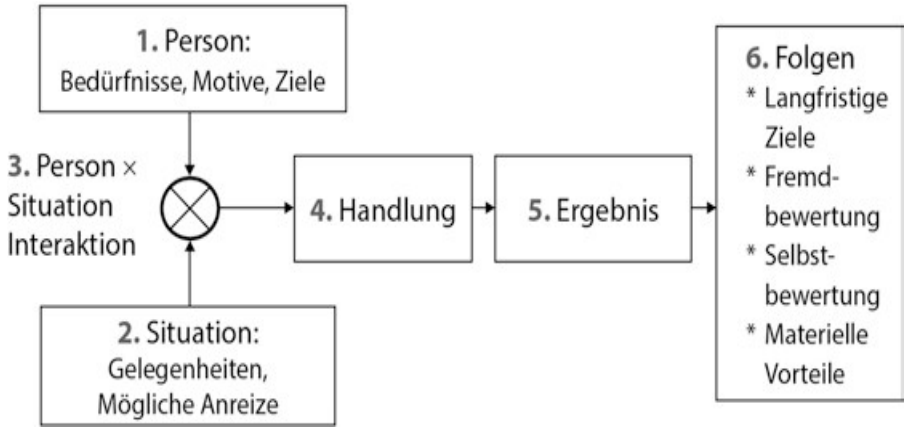
K. B.: "So Ham and other "Mahavakyas" cannot be directly captured in words,
In this respect, it is not an easy task to describe this in a quotation. Nevertheless, here is an attempt to describe it in my own words: In order to clarify the meaning (and the effect) of the mantra, some preconditions are necessary. In yoga (from the point of view of Vedanta) there is not only the physical body but three bodies (and five so-called "sheaths"). This model describes the "embodiment" or " the (small) self" and all forms and embodiments in this world. Outside this world is the
"higher self" (non-form) - this level cannot be described with the tools of the mind, but only "experienced". In this respect, the term "ultimate reality" is misleading. Also "Atman" (as an individual part of "Brahman") cannot (actually) be described with words or thoughts.

"So Ham" as a mantra connects the small self (embodiment, ego) with the higher (formless and all-embracing) self and creates awareness of the "non-form" in which everything is contained. Just like the "OM". From the point of view of the limited mind, it is paradoxical that all forms should be contained in a "non-form". The mind works with forms and limits. "Formlessness" is not comprehensible to the mind. With certain meditations, the levels of embodiment can be overcome and a
"Experience" of formlessness is possible. However, the (living) human being in his embodiment always falls out of this experience. The feeling of the experience of the higher self can be transferred into waking consciousness.

Perhaps a good quote would be: सोऽहम् In Vedic philosophy, So Ham stands as a mantra for the connection of the experienced individual reality with the all-encompassing highest Self. This connection can be experienced through meditation, among other things. I wish you much success in working on your Master's thesis and on the path of yoga. There is also a "university project" at *Yoga Vidya* in which we bring yoga and science even closer together and also deal with such questions. I would be happy to answer any further questions you may have."

Appendix B: Overview model - motivation in the course of action by Heckhausen & Heckhausen (2018)

Figure 1



Appendix C: Universal Characteristics of Purposeful Behaviour

Within motivational psychology, two universal characteristics of goal-directed behaviour are described that are relevant to all individuals. These are the *pursuit of efficacy* and the organisation of *goal commitment* and *goal distancing*. Both of these universal traits are behavioural evolutionary, but are considered highly adaptive. Their function is to select and guide behaviour (Heckhausen & Heckhausen, 2018). The pursuit of efficacy is described by Heckhausen and Heckhausen (2018) as the exercise of primary control on the environment. Expressions that could be assigned to this characteristic could be observed by Janos and Papoušek (1977) already in infancy. Future experiences of efficacy are particularly influenced by the first parent-child relationships.

interactions influences and promotes future generalised efficacy expectations (Watson, 1966). Within the second year of an individual's life, efficacy experiences also contribute to the development of the self-concept (Geppert & Heckhausen, 1990) and promote individual achievement striving.

Goal engagement and goal distancing are explained as motivational procedures that balance cognitive, behavioural and motivational
"Pooling action resources in the service of efficient resource investment" (Heckhausen & Heckhausen, 2018, p. 3). In goal engagement, an action goal is activated by paying attention exclusively to information relevant to the goal and blocking possible distractions. Relevant partial actions to achieve the goal are provided, which is fostered by an optimistic expectation of effectiveness (Heckhausen & Heckhausen, 2018). In goal distancing, this process is actively counteracted (Wrosch et al., 2003). The original action goal is blocked by cognitively devaluing it and placing an alternative action goal in the foreground. In order to justify the actual experience of failure, one's own self-worth is defended, thus avoiding future motivational losses of goal distancing (Heckhausen, 1999). Accordingly, goal-directed behaviour can also be described as organised experience and behaviour (Heckhausen & Heckhausen, 2018).

Appendix D: Sub-hypotheses of H1, H2 and H3

H1a	With a high score on the Noticing scale, the connection is between implicit and explicit achievement motives is significantly more positive.
H1b	With a high expression of the scale non-distraction, the correlation is between implicit and explicit achievement motives is significantly more positive.
H1c	With a high expression of the scale Don't worry, the Connection between implicit and explicit achievement motive significantly stronger positive.
H1d	With a high score on the Attention Regulation scale, the Connection between implicit and explicit achievement motive significantly stronger positive.

H1e	With a high score on the scale Emotional Awareness, the Connection between implicit and explicit achievement motive significantly stronger positive.
H1f	With a high score on the self-regulation scale, the Connection between implicit and explicit achievement motive significantly stronger positive.
H1g	With a high score on the Listening to the Body scale, the Connection between implicit and explicit achievement motive significantly stronger positive.
H1h	With a high score on the trust scale, the correlation between the between implicit and explicit achievement motives is significantly more positive.

H2a	Neuroticism is significantly positively related to the scale Notice.
H2b	Neuroticism is significantly negatively related to the scale Not-Distract.
H2c	Neuroticism is significantly negatively related to the scale Self-Don't worry.
H2d	Neuroticism is significantly negatively related to the scale Attention regulation.
H2e	Neuroticism significantly negatively related to the scores of the scale Emotional Awareness.
H2f	Neuroticism is significantly negatively related to the scale Self-regulation.
H2g	Neuroticism is significantly negatively related to the scale Auf-the body-listening.
H2h	Neuroticism is significantly negatively related to the scale Trust.

H3a	Openness is significantly positively related to the Noticing scale.

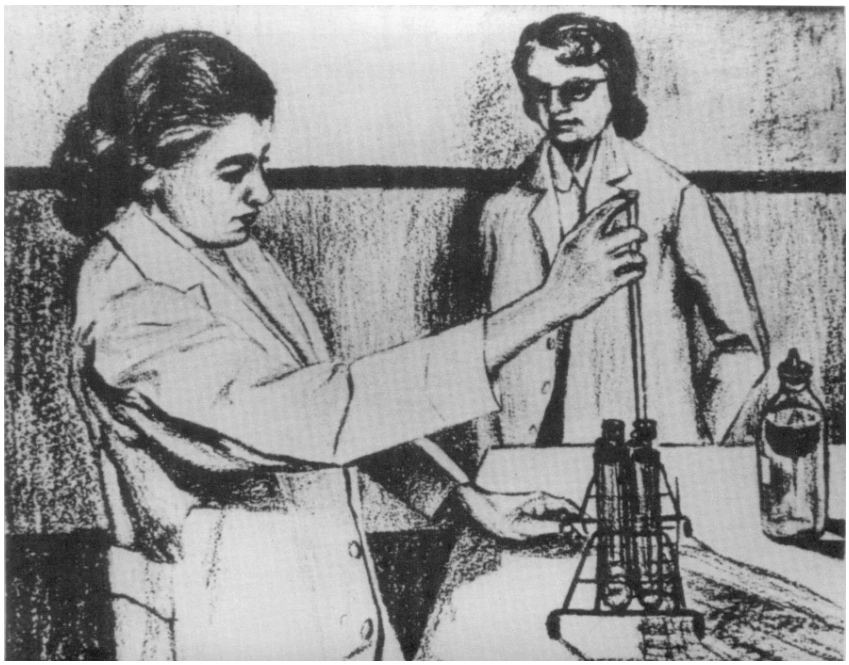
H3b	Openness is significantly negatively related to the scale Not-Distract.
H3c	Openness is significantly positively correlated with the scale Self-Don't worry.
H3d	Openness is significantly positively related to the scale Attention regulation.
H3e	Openness is significantly positively related to the scale Emotional Awareness.
H3f	Openness is significantly positively related to the scale Self-regulation.
H3g	Openness is significantly positively related to the scale On- the-Body-Hearing.

Appendix E: Collected socio-demographic variables and supplementary questions

- Indication of the gender to which they feel they belong by list selection: "diverse, female, male" as mandatory input
- Specification of biological age by open text input as mandatory input
- Indication of whether the test participant is a student by list selection: "yes, no" as mandatory entry and further indication of the field of study by open text entry.
-Indication of educational qualification by list selection: "without school leaving certificate, secondary school leaving certificate, secondary modern school leaving certificate, A-levels, completed vocational training, university degree (bachelor, master, diploma, or similar), doctorate/academic qualification, habilitation" as mandatory input
-Indication of own meditation experiences by list selection: "no, a little, regularly, daily" as compulsory entry.
-Statement of the use of other consciousness-expanding practices in everyday life (e.g. yoga, tai chi, qigong) by list selection: "yes, no" as compulsory entry.
- Indication of German as mother tongue by list selection: "yes, no" as mandatory entry
-Indication of whether questionnaire has been completed seriously by list selection: "yes,no" as compulsory entry on separate last page

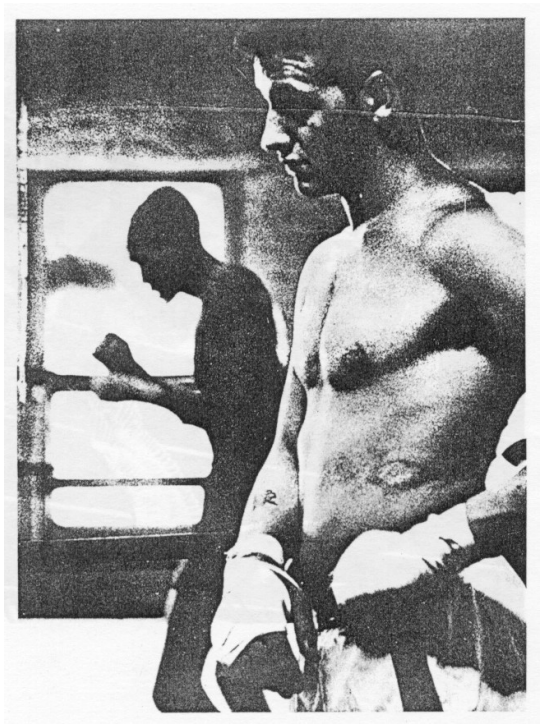
Appendix F: Four PSE images

Figure 2: "women in laboratory



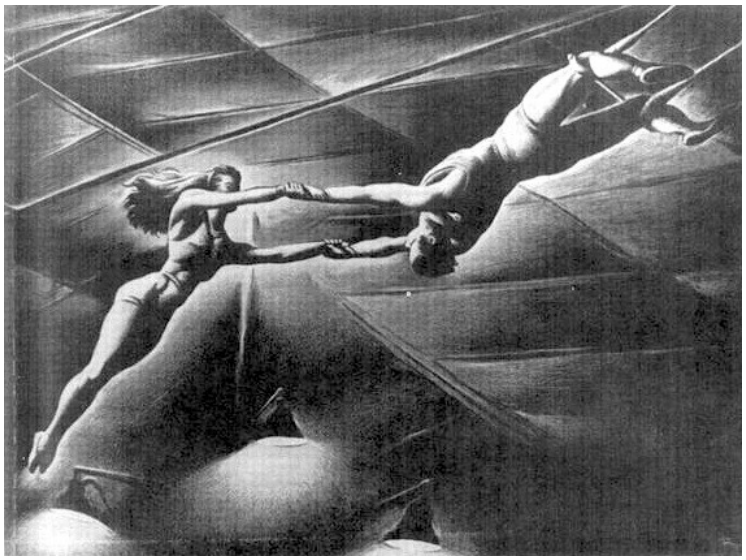
(McClelland, D. C., 1975)

Figure 3: "boxer



(McClelland, D. C., & Steele, R. S., 1972)

Figure 4: "trapeze artists



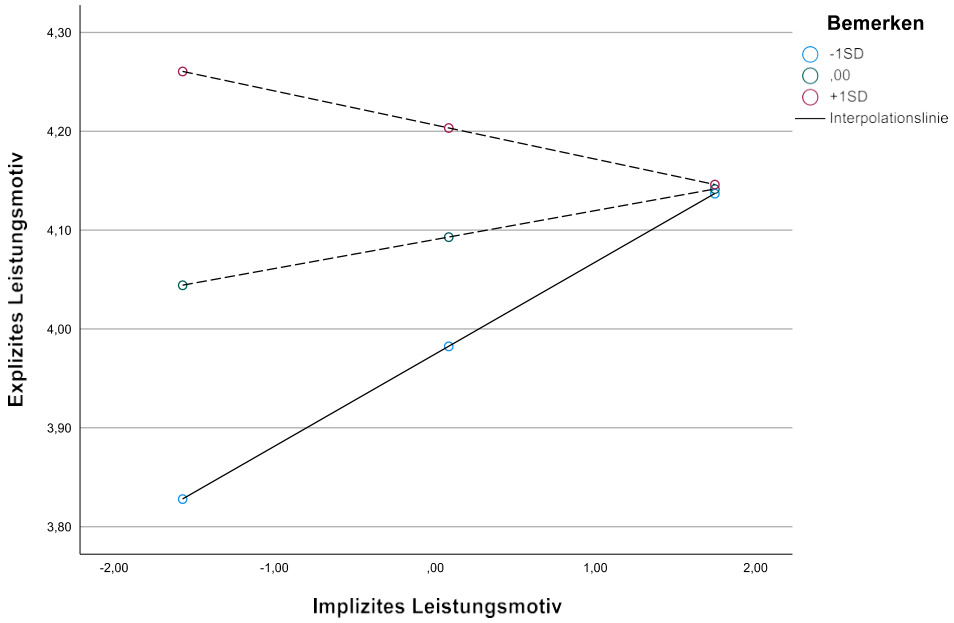
(McClelland, D. C., 1975)

Figure 5: "architect at desk

(McClelland, D. C., 1975)

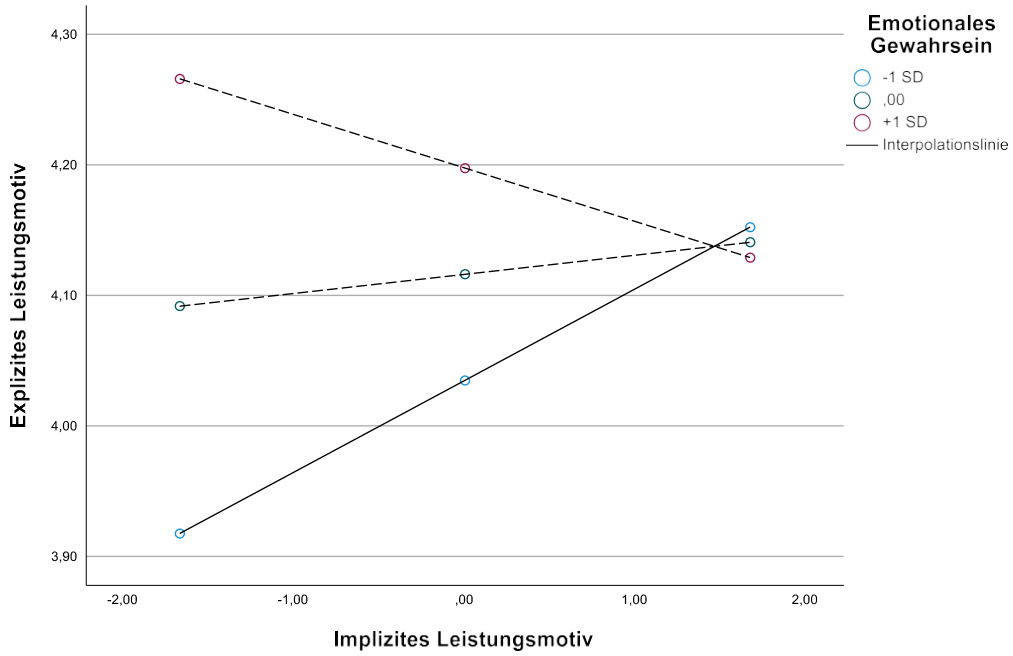
Appendix G: Moderation Analysis H1a with PROCESS (Hayes, 2017)

Figure 6



Appendix H: Moderation Analysis H1e with *PROCESS* (Hayes, 2017)

Figure 7



Appendix I: Exploratory Analyses

Since the test of H1a yielded hypothesis-contradictory results, three further exploratory analyses were conducted to shed more light on this finding. The first section describes the exploratory analysis in which meditation experience was included as a covariate in the model to test the moderation effect between noticing and the implicit achievement motive. This is followed by the exploratory analysis in which neuroticism was included as a covariate in the model testing the moderation effect between noticing and the implicit achievement motive. Next, the exploratory analysis is described in which MAIA- 2 without noticing (total score of MAIA-2 dimensions without noticing) was included in the model as an additional moderator of the interaction effect of noticing on the relationship between the implicit and explicit achievement motives.

Previously, the correlations between implicit and explicit achievement motive with the *total MAIA-2* and the *MAIA-2 without noticing were* determined. There was a significant positive correlation between explicit achievement motive and the total MAIA-2 (r = .28). There was no correlation between implicit achievement motive and the total MAIA-2 (r = .07). There was no correlation between the MAIA-2 without noticing and the explicit achievement motive (r = .07). There was also no correlation between the MAIA-2 without noticing and the implicit achievement motive (r = .03).

Noticing scale with meditation experience as a covariate

The result of block 1 of the moderated regression showed that there is no significant relationship between meditation experience and explicit achievement motive (AV), b = 0.069, SE = 0.065, β = .081, p > .05, 95% $_{CIb}$[-.060, 0.198], F(1, 169) = 1.112, p > .05, R^2 = .007. In the second block, the implicit achievement motive was included in the model, but this did not explain any additional variance in the explicit achievement motive (change in R^2 < .001, p > .05). There was no significant relationship between implicit and explicit achievement motive, b = 0.008, SE = 0.029, β = .022, p > .05, 95% $_{CIb}$[-0.049, 0.066], F(2, 168) = 0.594, p > .05, R² = .007. The relationship between meditation experience and explicit achievement motive was still not significant. Adding the moderator Noticing in the third block did not significantly change the variance explained (change in R^2 = .001, p > .05). The result of block 3 has

showed that there was no significant relationship between noticing and the explicit achievement motive (AV), b = 0.026, SE = 0.060, β = .034, p > .05, 95% $_{CIb}$[-0.092, 0.144], F(3, 167) = 0.456, p > .05, R^2 = .008. The relationships between meditation experience and the implicit achievement motive with the explicit achievement motive were still not significant.

Adding the interaction term in block 4 to test the moderation hypothesis did not significantly change the variance explained (change in R^2 = .005, p > .05). The overall model for block 4 was not significant, F(4, 166)
= 0.568, p>.05, R^2 = .014. The result of moderation analysis under the control of meditation experience showed that there is no significant moderation effect of *noticing* on the relationship between implicit achievement motive (UV) on explicit achievement motive (AV), b = 0.031, SE = 0.033, β = -.074, p > .05, 95% $_{CIb}$[-0.096, 0.034].
Meditation experience, implicit achievement motive and noticing were still not significant.

Noticing scale with neuroticism as a covariate

The result of block 1 of the moderated regression proved that there is no significant relationship between neuroticism and explicit achievement motive (AV), b = -0.017, SE = 0.053, β = -.025, p > .05, 95% $_{CIb}$[-0.121, -0.087], F(1, 168).
= In the second block, the implicit achievement motive was included in the model, but this did not explain any additional variance in the explicit achievement motive (change in R² < .001, p > .05). There was no significant correlation between the implicit and explicit achievement motives, b = 0.001, SE = 0.030, β = .003, p > .05, 95% $_{CIb}$[-0.058, 0.060], F(2, 167) = 0.052, p > .05, R² = .001. The
The correlation between neuroticism and the explicit achievement motive was still not significant. Adding the moderator Remarking in the third block did not significantly change the variance explained (change in R^2 = .002, p > .05). The result of block 3 proved that there was no significant relationship between noticing and the explicit achievement motive (AV), b = 0.034, SE = 0.059, β = .046, p > .05, 95% $_{CIb}$[-0.083, 0.063], F(3, 166) = 0.147, p > .05, R^2 = .003. The relationships between neuroticism and the implicit achievement motive with the explicit achievement motive were still not significant.

Adding the interaction term in the fourth block to test the moderation hypothesis did not significantly change the variance explained (change in R^2 = .006, p > .05). The overall model for block 4 did not become significant, $F(4, 165) = 0.367$, p > .05, R^2 = .009. The result of moderation analysis controlling for neuroticism showed that there was no significant moderation effect of *noticing* on the relationship between implicit achievement motive (UV) on explicit achievement motive (AV), b = -0.034, SE = 0.034, β = -.079, p > .05, 95% $_{CIb}$[-0.100, 0.032].

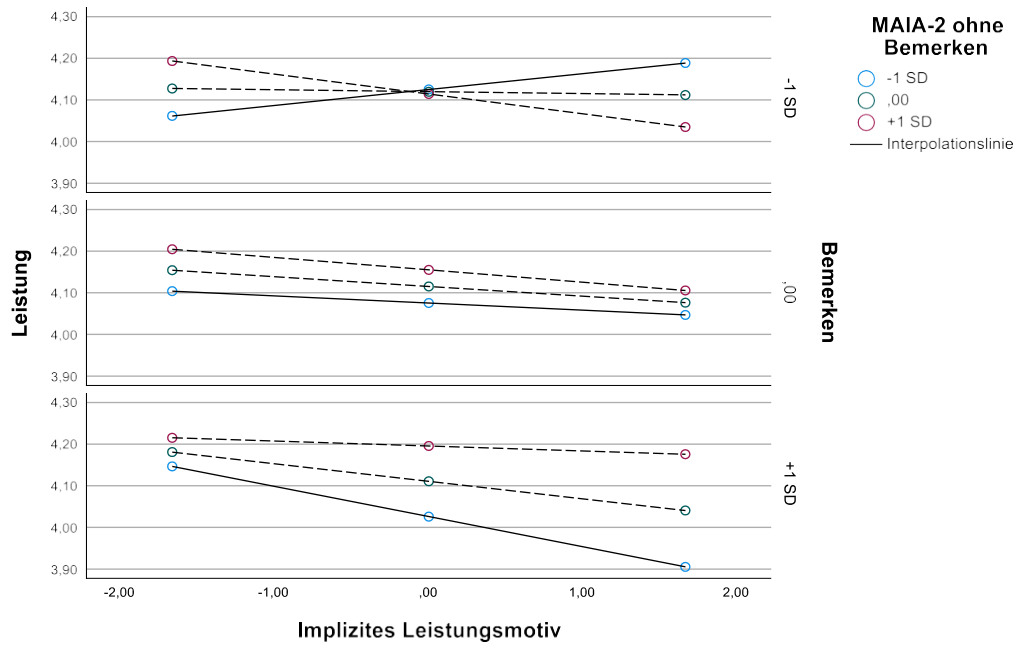
Neuroticism, implicit achievement motive and noticing were still not significant.

Scale Remarking with additional moderator MAIA-2 without Remarking

Testing the moderator MAIA-2 without noticing for the interaction effect of noticing on the relationship between implicit and explicit achievement motive was conducted using Model 3 in *PROCESS* by Hayes (2017) *version 4.1.* This showed a small effect for the 3-way interaction between implicit achievement motive, noticing and MAIA-2 without noticing (r = .12). However, the significance test was not significant, b = 0.002, SE = 0.001, p > .05, 95% $_{CIb}$[-0.001, 0.004]. All other predictors and interactions were not significant. The overall model result was $F(7, 157) = 0.749$, p > .05, R^2 = .032. Figure 8 illustrates that the moderation effect of noticing (H1a) tended to change positively (small effect size) with a high expression on MAIA-2 without noticing. With a high expression of noticing and an increasing expression of MAIA-2 without noticing, the negative correlation between implicit and explicit achievement motive tended to be positively influenced and tended towards a zero correlation.

For this exploratory three-way interaction, a post-hoc power analysis was conducted with G*Power *version 3.1.9.6* (Faul et al., 2009), since a small significant effect of f^2 =.015 (Cohen, 1988) was present. The power was 33.8%. For a test power of 80%, 540 participants would have been necessary.

Figure 8



Notes: Achievement = Explicit achievement motive.

Affidavit

I hereby declare that I have written the Master's thesis independently and have not used any sources or aids other than those indicated, and that I have identified as such any thoughts taken directly or indirectly from outside sources.

I have not yet submitted the thesis to any other examination office in the same or a comparable form. It has not yet been published.

16 September 2022

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Date and author's signature