

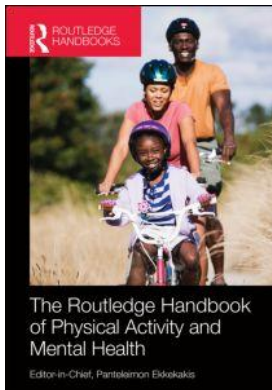
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IDENTITIES, SCHEMAS, AND DEFINITIONS

How aspects of the self influence exercise behavior

Shaelyn M. Strachan and Diane E. Whaley

A full understanding of human behavior requires consideration of how individuals view themselves. The proliferation of research addressing constructs such as self-esteem and self-efficacy exemplify this focus on self. Leary and Price Tangney (2003) posit self as an organizing construct that imposes order upon the numerous self-related constructs. According to these researchers, self is defined as the “psychological apparatus that allows organisms to think consciously about themselves” (Leary & Price Tangney, 2003, p. 8). How we view ourselves is recognized as more than a reservoir of self-knowledge and has implications for motivation and execution of goal-directed behavior (Stein & Markus, 1996). Through providing a reflexive core, the self is thought to enable individuals to experience, perceive, think, and feel in relation to themselves, as well as regulate themselves (Leary & Price Tangney, 2003).

Self-related variables have been applied in an attempt to understand exercise adherence (Fox & Wilson, 2008). The problem of exercise non-adherence has been consistently documented (e.g., Colley et al., 2011) leading to the proclamation that physical inactivity is a “major public health and human welfare problem” (Blair & Morris, 2009, p. 255). This problem is given further salience when one considers that through being sedentary, inactive individuals miss out on the extensive health benefits of physical activity (e.g., Haskell, Blair, & Hill, 2009; Kesäniemi, Riddoch, Reeder, Blair, & Sørensen, 2010). In an attempt to address the problem, the role of self in understanding exercise behavior has received increased research attention. In particular, identity has been implicated as an important self-related variable for understanding exercise behavior.

Conceptual views of identity

Identity has been viewed from cognitive (e.g., Markus, 1977) and sociological (e.g., Stets & Burke, 2003) perspectives. Fox (1997) defined identity as “the integration of beliefs, values, self-perceptions, and behaviors into a consistent, coherent, and recognizable self-package” (p. xii). With regard to adult development, Whitbourne and Collins (1998) add that identity is one’s sense of self over time, incorporating content areas such as physical functioning, social relationships, and life experiences. Finally, Burke and Stets (2009) suggest that “an identity is the set of meanings that define who one is when one is an occupant of a particular role in society, a member of a particular group, or claims particular characteristics that identify him or her as a

unique person” (p. 3). Thus, a composite of these definitions might be that identity is a complex yet organized integration of our beliefs, values, and behaviors into a self-package that develops and changes over time, guided by our social relationships and society at large.

The purpose of this chapter is to provide an overview of current knowledge pertaining to exercise identity. We focus on role identities related to exercise or physical activity, or related constructs that also capture self-definition around these behaviors. Identities include both implicit (outside conscious awareness) and explicit (known to the individual) components. Although both are important (e.g., Banting, Dimmock, & Lay, 2009), we focus on explicit identities. Our overview will include two theoretical perspectives that have been used to study exercise identities, followed by a review of the relevant literature associated with each perspective. We then describe Kendzierski and colleagues’ physical activity self-definition model, which provides a potential mechanism for fostering and maintaining an exercise-related identity. We conclude with a discussion of future directions for research.

The use of theory in exercise identity research

The use of theory is important in advancing research (Biddle & Nigg, 2000; Brawley, 1993; Noar & Zimmerman, 2005). Exercise identity research has varied in the extent to which it has been theory-based. Some researchers acknowledge the theoretical backing of the exercise identity construct whereas others go further and test theoretical propositions offered by relevant theories. A number of theories have incorporated the identity construct including the theory of planned behavior (e.g., Sheeran & Orbell, 2000) and recently, self-determination theory (e.g., Strachan, Fortier, Perras, & Lugg, in press; Vlachopoulous, Kaperoni & Moustaka, 2010; Wilson & Muon, 2008). While the inclusion of exercise identity within these theories is well justified and useful, due to space restrictions, our review of relevant theories is limited to theoretical perspectives in which self-identification is the central construct. Namely, we provide overviews of self-schema theory and identity theory.

Self-schema theory

Markus (1977) described self-schemas as “cognitive generalizations about the self derived from past experience, that organize and guide the processing of self-related information contained in the individual’s social experiences” (p. 64). Self-schemas are domain-specific; they represent the attributes, abilities, and experiences of an individual in a particular domain. The presence of a schema in a given domain facilitates encoding, evaluation, and retrieval of domain-relevant information (Cross & Markus, 1994). As a result, self-schemas are used as a basis for future decision-making, and theoretically, behavior (Whaley, 2004). Self-schema theory has its roots in the social cognitive perspective. Markus (1990) stated that, “while hypothesized to reside inside one individual’s head or heart, self-schemas are in large measure interpersonal achievements” (p. 249). Thus, schemas are influenced by and in turn influence the context and our perceptions of others (Whaley, 2004). Research examining self-schema theory in exercise has focused on the presence of schemas, as well as links between schemas, intentions, and behavior.

Kendzierski (1988, 1990) first examined self-schemas related to exercise. She found that college-aged exerciser schematics (individuals who considered exercise extremely important and descriptive of their self-image) compared to nonexerciser schematics (important and nondescriptive) and aschematics (moderately important and moderately or nondescriptive) exercised more frequently, did more activities, were more likely to have exercised the previous semester, were more committed to exercising in the future, and had more strategies for remaining

active (Kendzierski, 1988). These findings were substantiated in a concurrent multi-phase study (Kendzierski, 1990), where she found exerciser schematics could be distinguished from aschematics on a number of information processing tasks (endorsing more exercise-related descriptors, taking less time to make schema-consistent judgments, recalling more specific instances of past exercise, and predicting themselves more likely to exercise in the future). This attentional bias among exercise schematics has been more recently demonstrated (Berry & Spence, 2009). In a second study, Kendzierski used a prospective design to show that exerciser schematics were more likely to report adopting an exercise program than individuals without such a schema.

Since those influential studies, a number of researchers have examined the link between exercise schemas and behavior. Estabrooks and Courneya (1997) found partial evidence for the moderating effect of an exercise schema on the intention-behavior relationship, a finding confirmed in a longitudinal study (Sheeran & Orbell, 2000). Sheeran and Orbell suggested the importance dimension of self-schema was responsible for this moderator effect such that people who place greater value on exercise were most likely to follow through with their intention. Recently, Banting, Dimmock, and Lay (2009) found that implicit and explicit forms of self-schema were related to higher levels of exercise in adults. Although they did not find self-schema moderated the intention-behavior relationship, they did find that explicit exerciser self-schema was mediated by intention in its relationship with behavior. Kendzierski and her colleagues examined a potential explanation for the link between intention and behavior (Kendzierski & Sheffield, 2000; Kendzierski, Sheffield, & Morganstein, 2002). They found that exerciser schematics made less stable attributions for exercise lapses they imagined happened to them than aschematics, but both groups made similar attributions for lapses they imagined happened to others. A schema for exercise, then, seems to be related to more adaptive strategies that allow exerciser schematics to take the same situation and infer attributes that can be changed to allow for continued exercise participation.

Other researchers have examined correlates of exerciser schemas. For example, Boyd and Yin (1999) reported that exerciser schematics had more knowledge and enjoyment of sports than unschematics (i.e., aschematics and nonschematics), and Yin and Boyd (2000) found that exerciser schematics had higher levels of exercise self-efficacy and more positive perceptions of their physical fitness than non-exerciser schematics or aschematics. In an investigation of the relationship between exercise and depression in adult women (20–45 years), Clark (2002) found that exercise schemas mediated the relationship between physical self-efficacy and depression, and Harju and Reed (2003) discovered active college students who identified as an exerciser had higher levels of self-efficacy, longer workouts, and higher fitness levels. In contrast, those who identified as a nonexerciser were less fit and dwelled on negative thoughts related to their ability to exercise.

In the first qualitative examination of exercise self-schema, Whaley and Ebbeck (2002) interviewed 13 older adults who had been long-term exercisers. They hypothesized that older adults, and in particular older women, might be influenced in their perceptions of their exercise behavior because of ageist beliefs; descriptors embraced by younger populations (such as “exerciser”) might not be accepted as relevant to their behavior. Consistent with this hypothesis, only six of the 13 individuals were schematic for exercise using Kendzierski’s (1988) measure. Of the remaining seven, all but one rated their exercise behavior as very important to their sense of self, but not descriptive of the image they had of themselves. They preferred terms that hinted at age-related stereotypes such as “physically inclined.” It seems that although self-schema is regarded as a cognitive construct, the social context plays a role in helping to shape perceptions of identities. Hardcastle and Taylor (2005) built on this work by conducting multiple interviews of middle-aged and older adult women over time in order to examine the potential for changes

in perception of self and identity. Embracing an integrative view of identity (that is, across theories), they found that over time women developed new priorities and identities that included physical activity, and an identity of exerciser was associated with feelings of empowerment and well-being. Finally, Whaley and Schrider (2005) assessed current (self-schema) and future-oriented (possible selves) identities over a 10-week period in a group of older adult exercisers. Although future identities changed the most, changes also occurred in current selves. The idea that self-schemas can change is consistent with Markus' notion of the dynamic self (Markus & Wurf, 1987). This implies that interventions can be created to develop exercise-related identities, a point we will return to later in this chapter.

In the majority of studies described above, assessment of exercise schema uses the framework originally proposed by Markus (1977) and adapted to the exercise domain by Kendzierski (1988, 1990). Consistent with theory, three key questions focusing on importance and self-description related to physical activity are the basis of classification, with participants sorted into groups (schematic, aschematic, nonschematic, and unclassified) based on responses to those questions. The criticism of this approach is that a sizeable number of respondents typically remain unclassified (Sheeran & Orbell, 2000). Some researchers have opted to pool aschematics, nonschematics, and unclassified respondents into one category ("unschematics"), a technique that Kendzierski et al. (2002) demonstrated to be effective in distinguishing individuals possessing a specific schema from those who do not, and consistent with theory. Recently Mullen (2008), drawing from the work of Petersen, Stahlberg, and Dauheimer (2000), added "self-certainty" as an additional schemata dimension in an investigation of adult fitness club members. Self-certainty is described as the certainty of people's self-views, with higher self-certainty related to positive outcomes. As part of a larger study of exercise identity, Mullen found through factor analysis that the revised measure had three distinct factors (self-description, importance, and certainty), and cluster analysis showed profiles consistent with Kendzierski's (1988) schema classifications. Although lower self-certainty was related to changes in exercise self-description and importance (suggesting a role in maintaining exercise identity), 25% of the sample still fell into the unclassified category. The issue of measurement is an important one, and additional research across groups is indicated. In the meantime, Kendzierski's measure remains the gold standard for evaluating exercise-related self-schemas.

In summary, the research to date utilizing self-schema theory in exercise contexts has produced significant and meaningful information on the importance of having an exerciser schema. Having a schema for exercise is related to a number of positive outcomes, including enjoyment, persistence, and higher rates of exercise behavior. Research indicates that individuals with an exercise schema make more facilitative attributions for their exercise behavior, and create more strategies to maintain their exercise program. Exercise schemas do appear to have the capacity for change, boding well for use in interventions. Finally, although there are some criticisms of the measurement of exercise schemas, the process has been shown to differentiate individuals who possess an exercise-related schema from those who do not.

Identity theory

Identity theory assumes that individuals acquire a shared knowledge about social categories, including roles, through socialization. This shared knowledge provides boundaries for individuals and results in relatively fixed and predictable behavior (Burke & Stets, 2009). Identity theory has branched out into various emphases (e.g., Burke, 1980; McCall & Simmons, 1978; Stryker, 1980; Thoits, 1983). The work of Burke and colleagues focuses on internal dynamics and outlines how identities function as self-regulating control systems (Burke, 2006) that link identities to behavior

(e.g., Burke, 1980; Burke & Stets, 2009; Stets & Burke, 2003), which makes this stream of identity theory suited to understanding goal-directed exercise behavior.

According to identity theory (Burke, 1980), identities are associated with role meanings (e.g., what it means to be an exerciser) (Stets & Burke, 2003). Because of their link with meanings, identities serve as a personally relevant standard (Burke & Stets, 2009; Stryker & Burke, 2000) that encourages identity-consistent behavior (2006). As described elsewhere (e.g., Strachan & Brawley, 2008), individuals seek to behave consistently with their identity meanings. When individuals perceive they have behaved inconsistently with their exercise identity meaning (e.g., exercisers engage in regular exercise; I have not exercised in three days), the incongruence is thought to create negative affect and motivation to modify the situation so that behavior is brought in line with identity meanings (cf. Stets & Burke, 2003). If the comparison suggests no difference (I have engaged in regular exercise), identity verification has occurred, positive affect should result, and no change to the situation is necessary (Stryker & Burke, 2000). Finally, individuals can vary in the salience or strength of an identity (Ryan & Deci, 2003), which should influence the likelihood that individuals will engage in identity-relevant behavior (Anderson, Cychosz, & Franke, 2001).

Exercise researchers recognize the relevance of the identity construct for understanding exercise behavior. Anderson and Cychosz developed the exercise identity scale (Anderson & Cychosz, 1994), which measures the “salience of an individual’s identification with exercise as an integral part of the concept of self” (p. 747). Norms for this scale have been established (Anderson, Cychosz, & Franke, 2001; Vlachopoulos, Kaperoni, Moustake, & Anderson, 2008) and this scale has been widely used to measure the exercise identity construct.

Initial exercise identity research, much of it using the exercise identity scale (Anderson & Cychosz, 1994), established a link between exercise identity and exercise behavior. In cross-sectional studies examining university and adult community samples, exercise identity was found to relate to minutes of weekly exercise (Anderson, Cychosz, & Franke, 1998; Storer, Cychosz, & Anderson, 1997), frequency of exercise (Miller, Ogletree, & Welshimer, 2002; Wilson & Muon, 2008), number of weeks of exercise, perceived exertion, and physiological outcomes (Anderson, Cychosz, & Franke, 1998). These findings with mostly young adults have been extended to older adults where a relationship between physical activity identity and weekly frequency of physical activity was supported (Strachan, Brawley, Spink, & Glazebrook, 2010).

While these studies support a concurrent association between exercise identity and exercise outcomes, stronger support is offered by prospective research. Cardinal and Cardinal (1997) followed female college students enrolled in either an exercise or non-exercise class for 14 weeks. Exercise identity increased over the course of the class exclusively among exercise class participants. These findings show that exercise identity can increase over a relatively short time period. A few studies have examined exercise identity along with social cognitive variables in the prediction of exercise outcomes. In a sample of college students, Petosa et al. (2003) found exercise identity contributed to a model that significantly predicted frequency of vigorous physical activity (Petosa, Suminski, & Hertz, 2003). Strachan and colleagues (2005) prospectively examined identification with running among a sample of maintenance runners and found this construct to predict weekly running frequency and duration when combined with self-efficacy variables (Strachan, Woodgate, Brawley, & Tse, 2005).

Exercise identity is also associated with variables known to be important in the self-regulation of exercise. In a sample of maintenance runners Strachan and colleagues (2005) found that, when compared with individuals with lower scores on runner identity, individuals with higher scores reported higher concurrent levels of task and self-regulatory efficacy for running. These researchers found exercise identity to be concurrently related to self-efficacy for future exercise

(Strachan & Brawley, 2008; Strachan, Brawley, Spink, & Jung, 2009) and suggest that self-regulatory efficacy may act as a mechanism that encourages identity-consistent exercise (Strachan et al., 2009). In a prospective study Strachan and colleagues found that self-regulatory efficacy mediated the relationship between exercise identity and both exercise behavior (Sweet et al., 2009) and perceptions of identity-behavior consistency (Strachan, Brawley, Spink, & Sweet, 2011). Carraro and Gaudreau (2010) found that physical activity identity predicted the extent to which people planned their exercise, which in turn predicted physical activity goal progress. In addition, planning and physical activity goal progress related to physical activity identification over time. Recently, researchers have found links between exercise identity and the satisfaction of psychological needs (Vlachopoulos, Kaperoni, & Moustaka, 2011; Wilson & Muon, 2008) and more autonomous forms of behavioral regulations (Strachan et al., in press; Vlachopoulos et al., 2011), which are both factors identified as important in the regulation of exercise (Ryan & Deci, 2003). Finally, a study with older adults suggests that physical activity identity is a significant predictor of strength of physical activity intentions and quality of life (Strachan et al., 2010). It appears that exercise identity may be a marker for psychological variables important in the self-regulation of exercise such as intentions, planning, and self-regulatory efficacy related to exercise. Further, some research suggests that exercise identity may exert its influence on exercise outcomes through some of these variables (e.g., planning, self-regulatory efficacy).

Research that supports a link between exercise identity and behavior is consistent with the identity theory notion that individuals seek to behave consistently with endorsed identities (Stets & Burke, 2003). However, identity theory makes additional propositions about how identities relate to behavior as outlined previously. Strachan and colleagues have tested some of these theoretical propositions. Drawing on Burke's identity theory (1980), these researchers examined how individuals react to hypothetical (Strachan & Brawley, 2008; Strachan, Flora, Brawley, & Spink, 2011) and real-life (Strachan, Brawley, Spink, & Jung, 2009) situations where individuals perceive that their recent exercise is inconsistent with their exercise identity. Individuals with strong exercise identities react to these situations in a manner consistent with identity theory predictions, which suggests they are seeking identity-behavior congruency. For example, strong exercise identity individuals report greater negative affect about the situation, and stronger intentions and self-regulatory efficacy for future exercise (Strachan & Brawley, 2008) regardless of the cause (personally controllable versus situationally caused) of the identity-inconsistent behavior (Strachan et al., 2011). In an experimental study, individuals receiving feedback from a confederate designed to challenge their exercise identity displayed greater negative affect and made more effort to present themselves differently from the identity-inconsistent feedback than did individuals who received feedback designed to confirm their identities (Stadig, Strachan, & Jung, 2010). Finally, affective reactions associated with perceptions of identity-consistent or inconsistent behavior appear to be moderated by strength of exercise identity (Strachan et al., 2009).

Taken together, research examining the exercise identity construct suggests that exercise identity is reliably related to exercise behavior. A criticism of the exercise identity research to date is that only a small body of research has examined whether identified correlates of identity that may be important in the self-regulation of exercise (e.g., affect, planning, self-regulatory exercise) serve as links between exercise identity and identity-consistent exercise behavior. This lack of research is surprising given that identity theory outlines specific internal dynamics thought to link identities to behavior (Burke & Stets, 2009; Stets & Burke, 2003). This type of research is necessary to advance our understanding of exercise identity's role in the self-regulation of exercise.

Both schema theory (Markus, 1977) and identity theory (Burke, 1980) serve as appropriate bases for research that seeks to understand identification with exercise and how this process may

be linked to exercise outcomes. Research stemming from both of these theories provides converging support that self-identification as an exerciser is reliably related to exercise and exercise self-regulatory outcomes. A logical next step for researchers is to determine how exercise identities can be built, strengthened, and maintained so as to facilitate positive exercise outcomes.

Developing and maintaining an exercise identity

Although both Markus (1977) and Burke (1980) describe identities as robust and slow to change once formed, there is theoretical and empirical evidence that suggests identities can be created or strengthened. For example, Stets and Burke (2003) discuss how individuals can act as agents to create new roles and identities. Further, Stein and Markus (1996) describe how the self, as a dynamic, multifaceted structure, contains both stable, self-defining conceptions and less developed images of the self that can be shaped through ongoing social events. Researchers have found that exercise identity exhibits some change over time (Carraro & Gaudreau, 2010; Cardinal & Cardinal, 1997; Hardcastle & Taylor, 2005; Whaley & Schrider, 2005) supporting these theoretical notions. Until recently however, little work has examined *how* such identities might be formed. In particular, the process of forming an identity for an activity an individual freely chooses has received relatively little empirical attention (Kendzierski & Morganstein, 2009). The physical activity self-definition model (PASD; Kendzierski, Furr, & Schiavoni, 1998; Kendzierski & Morganstein, 2009) was created to explore identities for specific (e.g., tennis player, runner) and general (e.g., exerciser) physical activities. The development of the model focused on (a) what it might take for someone to “claim” an exercise-related identity (or self-definition) and (b) what the correlates of a physical activity self-definition are.

A number of applicable concepts and theories were examined in developing the preliminary model, including Bem’s (1972) self-perception theory, the early work of Cooley (1902) and James (1890) related to the role of the social world in how we see ourselves, the more recent theorizing of identity (Stryker, 1987), and self-schema (Markus, 1977) theorists. According to these models, identity should include constructs that relate to perceptions about the behavior (effort, importance) and motivation to engage in the behavior (perceived competence, improvement, and enjoyment). A comment from someone in the individual’s social world (e.g., “I’m impressed how consistent a runner you are”) or a choice one is forced to make (e.g., complying with a doctor prescribing a cardiac rehabilitation program) are hypothesized to activate self-reflection about a PASD.

In a series of three studies, Kendzierski et al. (1998) examined these correlates in weightlifters, basketball players, and exercisers. Perceived effort, perceived competence, the extent that physical activity was made a priority, perceived competence relative to others, perceived improvement, perceived social acknowledgment of the self-definition, and the extent to which others mention one’s activities were related to self-definition (enjoyment and self-definition was related to basketball and exercise but not weightlifting), and in open-ended responses far more behavioral than affective criteria were used to describe applicable identities. Kendzierski and Morganstein (2009) then tested and cross-validated the PASD model with runners and cyclists. Structural equation modeling supported a model whereby perceived commitment and perceived ability directly influenced self-definition, and perceived wanting, perceived trying, and enjoyment had indirect effects. The model suggests that although the context may necessitate changes in self-definitions (e.g., going from a walker to a runner self-definition over the course of a training program), the process by which individuals arrive at a self-definition should not. For example, runners might have different levels of enjoyment or commitment if they are working to increase their speed through interval training versus taking a cross-country run, but the process of

developing their runner self-definition (e.g., developing perceived ability and commitment) will remain the same.

This model has great potential for interventions, but the authors acknowledge some limitations. More testing is needed to determine if the model generalizes across physical activities and across individual differences like age, ethnicity, or ability level. Longitudinal research is also needed in order to track the development and maintenance of PASD over time. Following up on what social factors specifically relate to PASD formation is also needed. Although social factors are hypothesized to prompt thoughts about one's PASD, research to date has focused primarily on the cognitive correlates. However, the model does provide a starting point for interventions designed to build applicable physical activity self-definitions. Whaley and Schroyer (2010) offered an action-plan that included ways practitioners could foster aspects of the PASD model such as perceived commitment, perceived ability, and identity acceptance. Consistent with those suggestions, we offer the following ideas. Exercise leaders could increase perceived commitment by instituting appropriate goal setting or setting up a social support network for participants. Much research has examined ways to increase perceived ability, such as using skill progression, allowing enough time for practice, and keeping an exercise log. Finally, to help participants accept and embrace their new self-definitions, exercise leaders should provide appropriate feedback and use applicable language (e.g., you are a runner!) so participants can more easily "see" themselves in these new identities.

Future directions for exercise identity research

We have reviewed the extant exercise-identity literature and in the process attempted to identify gaps in the literature. Next, we outline suggestions for future research in terms of theory, methodology, and new thematic research directions that are likely to contribute to the field's advancement.

Theory

There are numerous reasons why we encourage exercise-identity researchers to ground their research in theory (Biddle & Nigg, 2000; Brawley, 1993; Noar & Zimmerman, 2005). Researchers who choose self-schema theory or identity theory as a basis are positioned to posit theoretically based hypotheses and situate their findings in an established body of literature. We encourage researchers to continue to integrate the identity construct into established theories or use theories that pertain to identity in a complementary fashion (e.g., Sheeran & Orbell, 2000; Strachan & Brawley, 2008). For example, self-determination theory (Ryan & Deci, 2003) offers a complement to identity research owing to its articulation of how individuals vary in terms of the extent to which they internalize a behavior. Recent research supports the relevancy of this theory for identity researchers (Strachan et al., in press; Vlachapoulos et al., 2011; Wilson & Muon, 2008).

Methodology and research design

Much of the exercise-identity research is correlational and cross-sectional. This preliminary research provides a basis for research questions and designs (e.g., longitudinal, experimental) that will lead to a better understanding of how exercise identity leads to exercise behavior (e.g., Banting, Dimock & Lay, 2009; Carraro & Gaudreau, 2010; Sheeran & Orbell, 2000; Strachan et al., 2011). Additionally, although a few studies have used a qualitative approach (e.g., Hardcastle

& Taylor, 2005; Whaley & Ebbeck, 2002), more qualitative research is needed to further clarify the significance and meaning of identities to individuals engaged in exercise. Future research should continue to utilize research designs and analyses that help elucidate the relationships among exercise identity, self-regulatory processes, and exercise behavior.

New thematic research directions

The physical activity self-definition model (Kendzierski et al., 1998; Kendzierski & Morganstein, 2009) provides an opportunity to examine the creation of identities, as well as the evolution of identities over time. Researchers should take this opportunity to test the model in activity contexts in diverse populations. As described above, both quantitative and qualitative methodologies would be helpful in explicating the mechanisms that are critical for self-definition to occur, as well as the maintenance of these identities. This latter issue could be critical in furthering our understanding of exercise adherence.

Similarly, temporal aspects of identity deserve additional attention. We have focused on identities formed from past and present experiences (Markus, 1977); however, future-oriented selves, termed possible selves by Markus and Nurius (1986), have been shown to complement present selves and serve as motivational plans for future behavior (Stein & Markus, 1996; Whaley, 2004). Imagining oneself in the future (e.g., as a physically active person) allows people to explore different possible identities (Dunkel, 2000) and may serve as a tool for changing one's self-concept (Dunkel, Kelts, & Coon, 2006). Future research should explore the potential role of possible selves related to physical activity in relation to exercise identity.

Final thoughts

In this chapter we reviewed two theories that focus directly on identity. Schema and identity theories have more in common than differences, with schema theory focusing more on cognitions, where identity theory takes a decidedly social approach. In the exercise domain, schema and identity both capture the extent to which people view exercise as a part of who they are and focus on importance as a critical marker for the existence of a schema/identity. Empirical research based on the two theories has found schemas and identities related to exercise outcomes such as adherence, enjoyment, and self-regulatory mechanisms such as self-efficacy and stable attributions. We believe there is room for two theoretical approaches, as there is room for multiple overlapping theories of motivation, anxiety, or peer relationships. Rather than being considered as independent and unrelated, we suggest that researchers consider exercise schema and identity theory research together when seeking to understand exercise self-definition. In addition, Kendzierski and colleagues' physical activity self-definition model draws from both theoretical perspectives and describes how identities might be established and maintained. This model presents an opportunity to move beyond description and prediction to the creation of interventions to establish new identities for exercise. Finally, our suggestions for future research are intended to engage new investigators and pursue new directions in identity-related research. We fervently believe that understanding identity is key to understanding exercise behavior, and we invite others to investigate these issues for themselves.

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