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What's all the fuss about pickleball? Motivational profiles of middle age and older adult recreational pickleball players

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Abstract

As a person becomes older their physical activity options may change or be reduced. One activity that is proving differently among older adults is pickleball. As of 2022 over 3.1 million people in the United States participate in pickleball (USAPA Pickleball, 2022). From the casual observer, many recreational tennis courts have been modified to accommodate the increase of pickleball players. Also, many of these pickleball players are older (40 +). Thus, the purpose of this study was to investigate the motivational profiles of 40 and older adults towards playing pickleball. Generally, it was learned that 40 and older adults participate in pickleball for fun, exercise and the social interaction that comes from playing pickleball.

Key Points: Pickleball is an excellent activity for older adults, for the reasons that it is fun, provides a form of exercise and the social interactions between the players.

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24 Benefits of engaging in health-enhancing physical activity (PA) include reduced chance
25 of cardiovascular disease (Altavilla et. al., 2018), diabetes (Bassuk & Manson, 2005), depression
26 (Schuch & Stubbs, 2019) and osteoporosis (Dhurup, 2012). Additionally, engaging in PA for
27 social interaction can enhance cognitive functions (Glei, et. al., 2005) and reduce depression
28 (Chiao et. al., 2011). One activity that can enhance both PA and social interaction is pickleball,
29 especially among the mature population of 40 years of age and older (Crumpler, 2015).

30 Pickleball is the fastest growing sport in the United States (Sports & Fitness Association,
31 2016), with approximately 3.1 million participants (USAPA Pickleball, 2020). The pickleball
32 court is played on a 20 ft. by 44 ft. court with a volley zone in the center. The equipment used for
33 playing pickleball is a paddle and wiffleball (Vitale & Liu, 2020). Pickleball could be
34 considered a combination of tennis, badminton, wiffleball and table tennis. Games are played as
35 singles or doubles (Vitale & Liu, 2020). Pickleball's growth and popularity are evidenced by
36 crowded community centers and its incorporation into recreational facilities, retirement
37 communities, and physical education classes (Buzzelli & Draper, 2020). In 2000, there were
38 roughly 500 to 700 known pickleball players in the United States (Schauer, 2013). Pickleball has
39 significantly grown in the 'sun belt' states, such as Arizona, California, Florida, and Texas which
40 are home to many of the older population (Hurley, 2015). Casper and Jeon (2019) stated, "By
41 many accounts, pickleball is the fastest growing participation sport in the United States.
42 Between 2010 and 2016, there has been a 385% increase in participation (over 2.5 million
43 current players. The popularity of the game is expected to continue to grow up with an estimated
44 eight million players by 2020 (p.29).

45 Self-Determination Theory

46 Self-Determination Theory (SDT) encompasses a broad approach for understanding and
47 explaining a range of aspects associated with human motivation (Deci & Ryan, 1985, 1991).
48 According to SDT, humans are driven by psychological needs which originate within or are
49 influenced by the external environment (Standage et al., 2005). These psychological, universal,
50 human needs have generally been organized into three categories: competence, autonomy, and
51 relatedness. Competence suggests the perceived ability one has in completing a given task.
52 Autonomy is the relative sense of one's choice or agency to complete the task. Relatedness
53 connotes a perception of belonging within a group or with significant others.

54 SDT postulates that individuals are endowed with the personal agency to evaluate a task,
55 make decisions, and then self-regulate their behavior accordingly (Sun & Chen, 2010). Further,
56 motivation is said to lie on a continuum from a complete absence of volition within a given task
57 to engaging in the task with complete internally originating self-determination. This motivational
58 continuum includes amotivation, various levels of extrinsic motivation, and intrinsic motivation.
59 Individuals experiencing amotivation have no volition or intention to act. Extrinsically motivated
60 individuals engage because of some motive external to the activity (e.g, desire to obtain a reward
61 or fear of punishment). Those who are intrinsically motivated engage because they feel a
62 personal enjoyment and satisfaction in doing so (Ryan & Deci, 2000).

63 A range of extrinsically motivated psychological states have been identified: external
64 regulation (e.g., participation to obtain a reward), introjected regulation (e.g., participation to
65 avoid shame or guild), identified regulation (e.g., participation for personal importance), and
66 integrated regulation (e.g., participation because of self-awareness of the potential benefits of
67 engagement). However, extrinsically motivated individuals have not reached a level of
68 engagement that reflects personal enjoyment for the task. (Ryan & Deci, 2000).

69 It is important to note that social activities such as pickleball “can facilitate or forestall
70 intrinsic motivation by supporting versus thwarting people’s innate psychological needs” (Ryan
71 & Deci, 2000, p. 71). In other words, when individuals are already intrinsically motivated for a
72 given task (e.g., through novelty or challenge), the social aspects of the activity can strengthen
73 the innate internally originating activity. Conversely, when activities have no appeal of novelty,
74 challenge, or benefit to self, the social presence may invite extrinsic, or less self-determined
75 reasons for engagement.

76 With the popularity of pickleball, research has emerged promoting its benefits. Casper
77 and Jeon (2019) examined the psychological connection to pickleball by investigating active,
78 older adults from the Southeastern United States (55 years and older) in relation to behavioral
79 involvement and motives for participation. Results suggested that fitness and socialization were
80 the main reasons driving participant engagement in pickleball. Another study extolling the
81 benefits of pickleball in the older aged population investigated serious participation in pickleball
82 and its effects on depression (Heo, et. al., 2018). The researchers considered serious participation
83 to include highly dedicated amateurs who had participated in a state pickleball tournament and
84 reported personal enrichment, self-actualization, self-gratification, and had group (team)
85 accomplishments from playing the sport. Results revealed an inverse relationship between
86 serious pickleball engagement and levels of depression. This suggests that pickleball engagement
87 may serve as a possible intervention for lowering depression in adults.

88 Notwithstanding the growing popularity of pickleball in the United States, few studies
89 have examined pickleball engagement from a self-determination perspective. When a social
90 movement like the spread of pickleball increases at a relatively rapid pace, understanding this
91 phenomenon can be beneficial. A better understanding of why people engage in pickleball may

92 facilitate further enhancement for the benefits associated with increased PA and social
93 engagement among the older adult population. Thus, the purpose of this study was to investigate
94 the motivational profiles of adults 40 years and older toward playing pickleball.

95 **Methods**

96 **Participants and Setting**

97 Participants, located in the Intermountain west, included 272 adults (114 males & 157
98 females) 40 years of age and older ($r_{\text{age}} = 40$ to 80+ years: see Table 1 for gender and age
99 groupings). Participants were recreational players who played on community outdoor courts,
100 recreational center courts, and indoor gymnasium courts.

101 **Procedures**

102 Upon IRB approval, a nonprobability sample of convenience was employed for data
103 collection. Participants were recruited with an introductory e-mail explaining the intent of the
104 study which included a link to the electronic questionnaire. After reviewing and selecting the “I
105 agree” section of the e-mail, participants provided informed consent to participate in the study.
106 Surveys were disseminated electronically on two occasions, with the second e-mail
107 communication as a reminder. Following consent, participants completed a brief survey via
108 Qualtrics.

109 **Instrumentation**

110 The survey used to investigate motivational profiles for engaging in pickleball consisted
111 of a modified version of the 16 item-four subscale (IM-intrinsic motivation, IR-identified
112 regulation, ER-external regulation and AM-amotivation), Situational Motivation Scale (SIMS;
113 Pelletier reference) followed by four open-ended questions. The SIMS stem stated, “Why are
114 you currently engaged in playing pickleball?” Participants responded to each of 16 items on a 7-

115 point Likert Scale (1= Not at All; 2= Very Little; 3= A Little; 4= Moderately; 5= Enough; 6= A
116 Lot & 7= Exactly) along with four open-ended questions. For example, they responded that they
117 were participating in the pickleball activities (a) “because I think that this activity is interesting”
118 or (b) “because I don’t have a choice.” All surveys were proctored using the same set of
119 instructions that were read prior to each survey. The SIMS survey has demonstrated acceptable
120 levels of validity and reliability across a variety of settings and populations over many years
121 (Briere et. al., 1995; Guay & Vallerand, 2000).

122 **Data Analysis**

123 The 16 items of the SIMS were reduced to four subscales by calculating the average of
124 each of the four corresponding items. Subsequent analyses were conducted on these subscale
125 scores. Preliminary analyses, conducted to check for outliers, normality, and reliability, were
126 performed on each subscale. Internal consistency was assessed by calculating a Cronbach alpha.
127 Pearson correlations were calculated among respective subscale scores to assess the stability of
128 the underlying simplex pattern (i.e., strongest correlations between adjacent subscales). If a
129 simplex pattern was evident, it would provide evidence supporting the self-determination
130 continuum (Pelletier, et al., 1995). The Self-Determination Index (SDI) was calculated as
131 follows; $2 * IM + 1 * IR - 1 * ER - 2 * AM$. Larger SDI scores are indicative of increased self-
132 determined motivation. Between gender differences were examined via a series of one way
133 ANOVAs for each of the four SIMS subscale scores and the SDI score using a Bonferoni
134 adjusted p value of $p \leq .01$ (see Table 1).

135 Other data collected from this study were the four open-ended questions on the survey.
136 The researchers analyzed all of the open-ended responses from the survey. For the open-ended
137 participant responses were correlated and reviewed to generate preliminary coding categories,

138 with framework analysis methodology for participant responses, as outlined by Check and Schutt
139 (2011). Framework analysis incorporated the stages of (1) familiarization, (2) thematic, (3)
140 identification, and (4) charting and interpretation (Rabiee, 2004).

141 **Results**

142 Means, standard deviations and reliability scores are available in Table 1. All subscale
143 means were found to be normally distributed. The overall population demonstrated high levels of
144 IM ($M=6.42$; $SD= .60$), IR ($M= 6.33$; $SD= .70$), and low levels of ER ($M=1.58$; $SD= 1.0$) and
145 AM ($M= 2.16$; $SD= .56$) as expected, suggesting that participants were decidedly more self-
146 determined than not. In particular, the indices for autonomous forms of motivation (IM & IR)
147 were between six and seven on a seven-point scale, while controlled forms of motivation (ER &
148 AM) ranged between one and two on the low end of the seven-point scale.

149 Correlational analysis provided support for the simplex pattern among the motivational
150 subscales (Prusak, et. al., 2004) (See Table 3). The strength and direction as reported in Table 2
151 indicate a positive relationship between IM and IR subscales and a negative relationship with ER
152 and AM.

153 Between gender differences were found with females exhibiting significantly higher
154 levels of IM ($F(2, 269) = 6.40, p = .002$) and IR ($F(2, 269) = 18.92, p < .001$) and SDI ($F(2, 269)$
155 $= 9.13, p < .001$). No significant differences were noted between genders with respect to ER nor
156 AM.

157 Other data collected from this study was the open-ended questions on the survey. The
158 first open-ended question was, “What is it about pickleball that makes you want to play?”
159 Throughout the participant responses, three main reasons were expressed: fun, competition, and
160 the social aspects of playing pickleball. A 72 year old female stated,

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161 “The fun, challenge, exercise and most importantly the friendship. I am 72 and have
162 friends from their 30’s to the 80’s. It’s so much more than just the game. It’s an
163 incredible community. We laugh every day! If someone is having problems, we are there
164 for them. It’s a family.”

165 A 63-year-old male said,

166 “It is fun, it is exercising, it is challenging, the endorphins flow when you play a good
167 game or make a good shot, I have made hundreds of great friendships with people I have
168 met playing pickleball- is these enough reasons.... I could go on!”

169 A 58 year old male stated, “Helps keep me healthy, added social benefit, is competitive and
170 enjoy playing with a wide variety of skill sets.”

171 The second open-ended question was “How involved in physical activity or sports were
172 you prior to playing pickleball?” The participants covered a wide spectrum of PA or sports
173 participation. For example, there were college athletes, recreational sports participants, and those
174 who had previously engaged in little PA. The third open-ended question was, “Why did you start
175 playing pickleball?” For this question many of the participants were introduced to pickleball by a
176 family member, husband, wife, or friend. The final open-ended question was, “In your opinion,
177 why has pickleball become so popular over the past few years?” One participant stated, “Easy to
178 learn. Can be played across all ages, gender, shapes, and sizes.” A 68-year-old female said,
179 “Appeals to all ages and especially those with low activity levels and physical limitations.”

180 Similarly, a participant stated,

181 “It’s fun and very social. At our courts we are always planning something to do together.
182 Lunch, food trucks, birthday parties! Unfortunately, a couple of funerals for those we
183 have played with, and never would have had the opportunity to ever know if it hadn’t

207 Another participant said, “It’s a fun, social community that I feel welcomed.” Another
208 concurred, “The competition and the friendships that I make have been so enjoyable.” These
209 responses suggest that the social was the primary aspect. According to SDT, social engagement
210 facilitates self-determination when individuals are already intrinsically motivated to participate
211 (Deci & Ryan, 2000). We suggest that, while not explicitly indicated by participants in the open
212 ended questions, the sociality (relatedness) aspect was interrelated with the fulfillment of the
213 other two social nutrients: competence and autonomy (as evidenced by the survey results). In
214 other words, pickleball may be a social activity, but unless one feels some degree of competence
215 in completing the task and some autonomy about how and in what matter it is carried out, the
216 social pull may not be as strong and could even be detrimental.

217 Pickleball is a unique sport, particularly for the older population. One can learn the sport
218 and perform at a reasonable level perhaps without the same prerequisite practice and experience
219 of tennis, golf, or other activities. Moreover, the sport is becoming more accessible to a wider
220 range of playing abilities. For example, if someone does not have the competence or confidence
221 to play with some players, there is likely a group with which they can play, experience the
222 sociality involved, and compete at an appropriate level for their skill set. The following
223 participant quotes provide insight into these notions: “If someone is having problems, we are
224 there for them. It’s a family.” “There is a sense of community and friendships, anyone can play
225 pickleball. It’s fun, great physical exercise, makes you happy, challenges your mind and body.
226 Easy to play for all ages.”

227 Findings and insights from this study support other research exploring the effects of
228 playing pickleball on the happiness levels of older adults (50+) (Kim et al., 2021). It was
229 reported that older adults experienced general happiness when playing pickleball. A secondary

230 finding was that the older adults also had feelings of trust, safety and a community connection
231 with their teammates and opponents. These results strongly indicate how important the social
232 aspects are for the older pickleball players. Supportively, Casper et. al. (2021) studied the social
233 distancing restrictions during the COVID-19 pandemic on older pickleball players (65+). The
234 authors discovered that the COVID-19 restrictions significantly affected peoples' psychological
235 well-being. This manifested itself in lower mental health, higher loneliness, and lower life
236 satisfaction.

237 Implication and Conclusion

238 This study carries implications beyond the sport of pickleball. Activities like pickleball
239 seem to invite the fulfillment of the motivational needs of competence, autonomy, and
240 relatedness in the older population. The construct of relatedness is of particular import. Human
241 beings are social creatures with an inherent need to associate with others. In designing or
242 redesigning physical activities opportunities for adults or children, it is important that provisions
243 for social interaction are made. However, social interaction is likely not as effective in promoting
244 activity if it is isolated from perceptions of competence and autonomy. Whether community or
245 recreation centers, physical education classes, youth sports, participants must work toward self-
246 determination by experiencing the competence necessary to engage while also having some
247 choice to their engagement.

248 Another implication of this study is the importance of taking advantage of the popularity
249 of pickleball. One way of taking advantage is implementing pickleball in 6-12 physical
250 education classes. Physical educators should incorporate a pickleball unit for obviously the
251 physical activity benefits, but to introduce students to the lifetime opportunities to play
252 pickleball. Pangrazi (2003) has stated that a quality high school physical education program is a

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253 good place to prepare students for being physically active after they graduate from high school.
254 Pickleball is one of those activities that will assist students in lifelong physical activity. A final
255 implication of this study is the social interactions that come to those that play pickleball. Once
256 again from the qualitative data participants made the following statements, “I have made
257 hundreds of great friendships with people I have met playing pickleball, is these enough
258 reasons... I could go on!”, “I have met nice people on the court”, and “It’s an incredible
259 community. We laugh every day! If someone is having problems, we are there for them. It’s a
260 family.” These types of results have greatly helped those that participated in this study. Thus,
261 strengthening pickleball’s benefitting a person’s life.

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368 Table 1
 369 Means, standard deviations, alphas scores, and effect sizes
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Subscales	All (N= 271)		Alpha	Eta ²
	<i>M</i>	<i>SD</i>		
Intrinsic Motivation	6.42	.60	--	--
Identified Regulation	6.33	.70	--	--
External Regulation	1.58	1.04	--	--
Amotivation	2.16	.56	--	--
SDI score	13.3	2.22	--	--

Subscales	Males <i>n</i> = 114		Females <i>n</i> = 157		Alpha	Eta ²
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Intrinsic Motivation	6.27	.63	6.52**	.56	--	.05
Identified Regulation	6.10	.72	6.51**	.61	--	.12
External Regulation	1.60	.99	1.55	1.09	--	.00
Amotivation	2.13	.60	2.17	.53	--	.02
SDI score	12.7	2.3	13.6**	2.07	--	.06

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 372 Note: ** = $p < .01$, Cronbach $\alpha \geq .7$ are acceptable, Eta² indicates percentage of variance
 373 accounted for
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386 Table 2
387 Correlations
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	Age	IM	IR	ER	AM	SDI
Age		.12	.23**	.08	.15**	.02
IM			.62	.12	.09	.54
IR				.15	.17	.54
ER					.20	-.53
AM						-.53
SDI						

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390 Note ** = $p < .01$

391