Original Study

Validation of a Subjective Outcome Evaluation Tool for Participants in a Positive Youth Development Program in Hong Kong

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A B S T R A C T

Study Objectives: Using confirmatory factor analyses, this study examined the factor structure and reliability of a subjective outcome evaluation tool for students with greater psychosocial needs within the context of the Project P.A.T.H.S. in Hong Kong.
Design: To assess the views of program participants on the program content, implementer qualities, and program effectiveness of the Tier 2 Program of the Project P.A.T.H.S., the Subjective Outcome Evaluation Form for Participants (Form C) was used. Data were collected from 8,893 Grade 7 participants after they had completed the Tier 2 Program.
Results: The findings based on confirmatory factor analyses are generally consistent with the original hypotheses, providing support for the 3-factor model and the higher-order factor model containing 3 primary factors. Support for different types of factorial invariance based on 2 randomly split subsamples was also found. High coefficient alphas were found for the total scale and the 3 subscales.
Conclusion: Confirmatory factor analyses support the conceptual model underlying the Form C. Reliability analyses showed that the total scale and subscales possess excellent internal consistency.
Key Words: Confirmatory factor analysis, Subjective outcome evaluation, Adolescents, At-risk, Assessment

Introduction

The onset of risk behaviors in adolescence, such as substance abuse, delinquency, Internet addiction, bullying, and unsafe sexual behavior, is a growing concern on a global scale. Numerous studies show that Internet addiction has become a youth problem worldwide, because it brings many adverse effects on young people.[1] The prevalence rates of Internet addiction among adolescents ranged widely from 1.98% to 35.8% in different countries.[2–4] Similar worrying observations for adolescent gambling problem were found across multiple studies. Shaffer and Hall[5] found that 10% to 14% of the young respondents were at risk for problem gambling; Gupta and Derevensky[6] showed that 63% of students in Grade 7 to Grade 12 have engaged in gambling; Dickson et al[7] reported that adolescent problem gambling was as high as 2 to 4 times of the adult population; Hardoon et al[8] reported that 4.9% and 8.0% of adolescents were pathological gamblers and at risk for gambling, respectively. As concluded by Derevensky et al,[9] "prevalence research conducted over the past 3 decades clearly indicates that the rates of problem gambling among adolescents and young adults are typically greater than those among older adults."[p 4]

Adolescent sexual behavior is another risk behavior which deserves our attention. For example, increase in prevalence rates of sexual intercourse was found by Kann et al[10] across Grade 9 to Grade 12 female adolescents (from 32.1% to 66%) and male adolescents (from 40.6% to 67.1%). Other research findings also showed that while 2%-4% of girls and 6%-8% of boys were sexually experienced at age 12, such rates increased to 14%-20% and 20%-22% for girls and boys at the age of 14, respectively.[11] Regarding the exposure to pornographic material, Ybarra and Mitchell[12] found that 8% and 20% in adolescents aged 10-13 and aged 14-17, respectively have exposed to sexual explicit materials. Similar findings were reported by Wolak et al[13]: that exposure to pornographic materials has tremendously increased from 1% to 11% in boys aged 10-11 and 12-13, respectively. In short, sexual issues have become prominent in the adolescent years.

Concerning suicidal and self-harm behavior in adolescents, several phenomena deserve particular attention. Suicide rates among young people have increased in the last 4 decades; adolescents have the highest risk of suicide in one-third of countries worldwide; suicide is the second leading cause of death for those aged between 10 and 24.[14] Despite the fact that there were variations in the reported rates across countries, research consistently showed that deliberate self harm (DSH) has become increasingly prevalent among adolescents. Hawton et al[15] reported that among 15-year-old students in England, 6%-7% of them showed at least 1 episode of DSH during the previous

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12 months. In several studies, lifetime prevalence of DSH generally ranged from 12% to 37.2% in secondary school students in the United States.[16–18] In southern Europe, a prevalence rate of 24% was reported for young female adults in Italy[19] and a lifetime prevalence rate of 21.4% was found in Turkey.[20]

Similar observations were found in the Hong Kong context. Shek[21] pointed out that there are several adolescent developmental issues and problems in Hong Kong, including abuse of psychotropic substances, shoplifting and theft, adolescent mental health problems such as early psychosis and anxiety-related problems, unhealthy lifestyles such as alcohol consumption, smoking and early sexual activities, moral confusion, and youth unemployment and poverty. Similar findings were reported by a recent local study by Shek et al.[22]

How can we help adolescents with greater psychosocial needs or who exhibit risk behaviors? In the past few decades, adolescent prevention programs have been developed based on the knowledge in prevention science with the effectiveness of most of such programs supported by findings from randomized clinical trials.[23] Nevertheless, while randomized controlled trials are commonly regarded as the "gold standard" in prevention research, they are more likely to be adopted in the evaluation research context instead of direct service settings. In contrast, subjective outcome evaluation using the client satisfaction approach is commonly used to gauge the views of the service recipients in practice settings. Client satisfaction scales with different dimensions are commonly used to assess client satisfaction with different aspects of a program, such as program content, worker qualities, arrangements, and perceived effectiveness.

Although client satisfaction scales with multiple dimensions are used by medical professionals, there are several limitations of the existing literature. First, there is a great variation in the measures used, ranging from a few items to validated client satisfaction scales. Second, while different dimensions are proposed in some scales, the related conceptual models are problematic. For instance, Tran and Nguyen[24] used 10 items to assess 8 dimensions of client satisfaction, but factor analysis suggested only 3 factors. Third, while exploratory factor analyses were commonly used to understand the dimensionality of a scale, there were comparatively fewer studies using confirmatory factor analyses. For example, Kapp and Vela[25] used exploratory factor analyses to compare the factors extracted and the original proposed domains. Fourth, the quality of factor analyses performed was not high in some of the studies. For example, Manaf et al[26] reported that 2 factors were extracted from the client satisfaction items. However, only 1 column of factor loadings was presented. Besides, percentage of variance and cumulative percentage of variance were the same (value = 630.622) and the eigenvalue was unreasonably high (value = 160.522). Fifth, hierarchical factor analyses were seldom used to examine items of global and specific satisfaction in a scale. For example, Atkinson et al[27] conducted 2 exploratory factor analyses to examine the factor structure of the global items and specific items. In fact, it would be more illuminating if confirmatory factor analyses could be conducted. Sixth, studies on factorial invariance were almost non-existent in client satisfaction studies in the pediatric care literature. Finally, studies are scarce on client satisfaction scales in pediatric and youth services in the Chinese culture.

Against the above background, the factorial validity of the Subjective Outcome Evaluation Form for Participants (Form C) was examined in this study. To promote holistic development of junior secondary school students in Hong Kong, The Hong Kong Jockey Club Charities Trust initiated and financially supported a positive youth development project titled "the Project P.A.T.H.S." in Hong Kong, with 2 tiers of programs in the project.[28,29] While the Tier 1 Program is a universal curricula-based positive youth development program designed for students studying in Grade 7 to Grade 9, the Tier 2 Program is specially designed for adolescents with greater psychosocial needs. After the students completed the Tier 2 Program, they were invited to respond to a subjective outcome evaluation scale (Form C). The present study aimed to explore the dimensionality of Form C using confirmatory factor analyses. Apart from testing primary factor models and higher-order factor models, factorial invariance tests were also conducted based on 2 randomly formed subsamples.

Methods

Participants

In academic year 2010/11, 23,545 Chinese junior high school students (Grade 7: n = 8,899; Grade 8: n = 8,591; Grade 9: n = 6,055) joined the Tier 2 Program of the Project P.A.T.H.S. At the end of the program, all participants were invited to complete a form (Form C). In the present study, only the data collected from the Grade 7 students were focused.

Procedures

Participants completed a questionnaire in the last session of the program. They were informed that their participation in the study was voluntary. Research assistants distributed the questionnaire and explained the purpose and procedures of the study. Confidentiality of the data was assured. Participants took approximately 5-10 minutes to complete the questionnaire.

Measures

The 24-items Form C assessed participations' perceptions of the program regarding the program content (8 items), program implementers (8 items) and program effectiveness (8 items).

Data Analytic Strategy

All multiple group confirmatory factor analyses were performed with Mplus, version 7.11.[30] Prior to the main analysis, the skewness and kurtosis of all observed variables were tested. Maximum likelihood estimator was employed as all variables were normally distributed and incomplete